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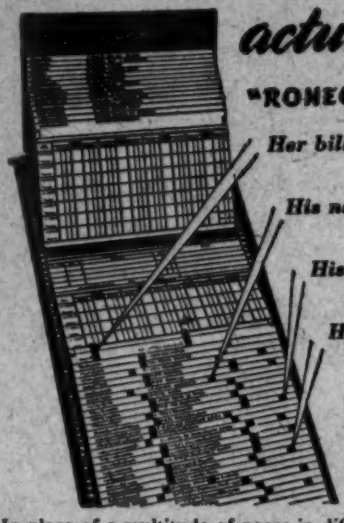

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BRITISH MEDICAL JOURNAL

LONDON SATURDAY SEPTEMBER 25 1948

THE PRESENT POSITION OF NEUROSURGERY IN GYNAECOLOGY*

BY

ALBERT DAVIS, M.D., Ch.M., F.R.C.S., M.R.C.O.G.

Gynaecological Surgeon, Prince of Wales's, French, Dulwich, and St. Giles Hospitals, London

The advent of autonomic surgery and its specific application by the Lyons School (Leriche, 1925; Cotte, 1925; Molin and Condamin, 1929a) twenty years ago marked an epoch in gynaecology, and since that time a variety of operations, mainly designed to interrupt sympathetic pathways from the uterus, but all concerned with the relief of pelvic pain, have been carried out by a variety of surgeons. A sufficient time has now elapsed, and a large enough number of cases have been so treated, to allow of assessment of their relative value, and it is my purpose to examine the nature of the procedures involved, their specific indications, and the long-term results of their application. The operations which have survived the initial enthusiasm are presacral, ovarian, and utero-sacral sympathectomy, cordotomy, pelvic alcohol block, and various types of spinal injection, and it will be convenient to discuss these seriatim.

Resection of the Presacral Nerve

This operation was first described by Cotte in 1925, and has since established itself as the prime pelvic sympathectomy. A logical extension of Leriche's (1925) pioneer periarterial and lumbar resections, it was based largely on the new conception of the pelvic nervous system arising from Rochet and Latarjet's (1913) brilliant anatomical description of the presacral nerve. They showed that here, in one easily accessible bundle, was concentrated practically the whole sympathetic supply to the pelvis, and that uterine denervation could be accomplished almost completely and relatively easily by resection of this main trunk.

Rationale.—The sympathetic nerves to the uterus carry motor contractile fibres, so that their section diminishes the muscular spasm which is the basic cause of spasmodic dysmenorrhoea. They also contain the majority of the sensory fibres from the organ, so that their resection will relieve not only the pain of dysmenorrhoea but also that arising from other uterine conditions. It has been shown, too, that in many cases of dysmenorrhoea and uterine carcinoma the pain is primarily due to pathological changes in the peripheral uterine sympathetic nerves (Davis, 1938; Dargent, 1948), division of which removes a constant source of irritation.

Indications.—The operation is curative in cases of severe spasmodic dysmenorrhoea, and is indicated in those patients who remain unrelieved by medicinal treatment, cervical dilatation, and alcohol injection. It is also of great value as an adjunct to other gynaecological procedures, particularly where pain has been a prominent and long-standing symptom. The pain of pelvic carcinoma, either primary or secondary to radiotherapy, is relieved by this method, but only when it is purely visceral in type; spinal pain is naturally unaffected by sympathetic resection.

Technique

Absolute relaxation is essential, so that spinal analgesia is the ideal method. In nervous patients the pentothal–curare–cyclopropane sequence is satisfactory. The highest Trendelenburg position is also necessary to secure freedom from bowel interference. The incision is placed in the midline midway between umbilicus and symphysis, and need not be more than 1 in. (2.5 cm.) in length; the "Dan to Beersheba" gynaecological incision is unnecessary in uncomplicated cases, and serves mainly to convert a relatively minor operation into a major one. The sacral promontory and aortic bifurcation are identified, and the posterior parietal peritoneum covering the space between is picked up and incised longitudinally for 2 in. (5 cm.). The whole of the neuro-areolar tissue between the common iliac vessels is systematically separated and gathered into a median bundle, care being taken to strip the under-surface of the peritoneum, to which large nerve bundles are often attached. The presacral nerve is occasionally identifiable as a single narrow cord, but it usually consists of several parallel fibres of varying size, so that wide mass dissection is preferable to individual removal. During separation several lateral filaments will be exposed, particularly one from the fourth lumbar ganglion, and these must be divided. The nerve bundle is now elevated with an aneurysm needle and further separated above and below for a distance of 1 in., then divided at each end. This wide excision is necessary to ensure a permanent effect, for regeneration, as Haxton (1947) has shown, can be remarkably rapid and complete in sympathetic nerves.

Ligation is unnecessary, any small haemorrhage being controlled by tampon pressure. It is also unnecessary, and indeed unwise, to transgress the limits of the operative field, for vascular damage is easily accomplished and very difficult to control. The peritoneum is then sutured, the pelvis explored, and any minor abnormality corrected.

The operation is relatively easy, and quite safe provided careful attention is paid to the anatomical relations of the area. The ureter occasionally lies near the middle line in this position, and the pelvic mesocolon sometimes transgresses it, but neither abnormality should cause trouble if properly identified. There are also no adverse

*A postgraduate lecture given at the Chelsea Hospital for Women on Dec. 6, 1947.

effects, apart from an increase in the menstrual flow. The pain of subsequent parturition is in fact much minimized, and Blinick (1947) has reported a case of two consecutive painless labours following presacral neurectomy.

Results

The prime indication for presacral neurectomy is dysmenorrhoea, and it is in this condition that the best results are obtainable. But just how good these are is much disputed, and the figures given by different writers reveal very considerable variation. Cotte, the inventor of the operation, is naturally an enthusiastic advocate, and in a recent personal communication states that it is "always successful" in his hands. Greenhill (1942) is similarly optimistic, and Curtis and his associates (1942) are emphatic about the permanence of their cures. Cannon (1937) reports 100% cure in 10 cases, Cannaday (1938) complete or marked relief in 37 out of 40 cases, and Pike (1942) in 14 out of 15. All of De Courcy's (1934) 21 cases were cured, and similar results in smaller series have been reported by Tirelli (1928), Waters (1946), and others. Some reports are less satisfactory. Counseller and Craig (1934), in an evaluation of the end-results of the Mayo Clinic cases, found only nine of 15 cases completely cured, though the remainder were much improved. Meigs's (1939) 20 cases of presacral resection alone showed 15 complete cures, two partial and three complete failures, and Masson and Shoemaker (1938) obtained only five cures in 10 cases, though the remainder were improved. Donaldson (quoted by Bourne and Williams, 1945) gives his results in 54 cases as good in 18, fair in 16, and bad in 20, and the experience of Bourne and Williams (1945) leads them to the caustic conclusion that "the operation is not so universally successful as some would have us believe."

My own experience covers 86 cases, extending over 16 years, and the results in later cases show a considerable advance over the earlier. The patients operated on before 1934 showed a cure rate of 54%, and those up to 1945 of 71%. Of eight patients operated on since that time, however, only one is not cured, and she admits to considerable improvement. This progression is due to a variety of causes—more extensive denervation, more careful peritoneal stripping, and more extensive coincident surgery, but the main factor has been increased care in the selection of cases. It has now been established that the only dysmenorrhoea for which presacral neurectomy is basically indicated is the primary spasmodic type: congestive secondary cases may be improved, but the result is always problematical. It is accordingly my practice to limit the operation to those patients suffering from intolerable colicky pain centred over the hypogastrium, and in whom all minor and operative measures—exercises, antispasmodics, cervical dilatation, and alcohol injection—have failed. Under these circumstances the results achieved are excellent, and it is possible practically to guarantee a permanent cure in the properly chosen case.

The importance of careful choice cannot be overemphasized, for it is unwarrantable to subject an otherwise normal young woman to operation for pain alone without a fair certainty of success. Cases of intractable primary dysmenorrhoea are not common, and the average gynaecological surgeon will see perhaps 10 a year. Masson and Shoemaker (1939) found only 15 such cases in 682 cases of dysmenorrhoea—an incidence of 2.2%, and though my own figures show the rather higher rate of 4.8% both emphasize the comparative rarity of the indication.

In *secondary dysmenorrhoea* the operation is less successful, and it should not be undertaken for this condition alone. But as an adjunct to operative procedures for the correction of gross pelvic pathology, particularly where pain is a prominent symptom, presacral resection is invaluable, and should be carried out as a routine in these cases. It is naturally difficult to apportion the pain relief after such composite operations, but there is no doubt of the superiority of the combination.

The visceral pain of incurable *pelvic carcinoma* may be relieved by the operation, though the spinal pain, often predominant, naturally remains unaffected. It is consequently important to make a careful differentiation in each case, and to limit sympathectomy to those with a minimum of somatic pain. Leriche (1939), Todd (1937), and Greenhill (1941) have described the visceral pain as being characteristically diffusely spread over the hypogastrium and lower lumbar region, with rectal tenesmus and cystalgia as a frequent accompaniment. Radiation into the thighs and vulva is common but remains diffuse and non-somatic. Somatic pain may present as a girdle pain or be referred along the affected nerves (sciatic, pudendal, obturator), and is usually easily identifiable. True visceral pain is relieved by sympathectomy, and Greenhill (1933), who has done most to popularize this application, states that it will yield almost perfect results if restricted to appropriate cases. As early as 1933 he reported complete relief in 10 patients suffering from cervical carcinoma, and similar success has been claimed by Wetherell (1933), Paolucci (1928), Pereira (1946), and others. Of Behney's (1934) 21 cases, 16 were relieved for the remainder of their lives, over periods from four weeks to 13 months. Other surgeons, however, have not been so fortunate. Cotte (1936) himself says that pain in the bladder and rectum is not always relieved; Atlee (1935) was successful in two out of five cases, and Dargent (1948) in one out of three; Verbrugghen (1940) says that relief is obtained only while the growth is limited to the body of the uterus; while Cutler (1938) states that only 50% of cases will show a good result, "in spite of the loud clamour of the gynaecologists."

My own experience in eight patients has not been encouraging. The operation was technically impossible in two because the malignant mass encroached on the promontory, in two the pain was unaffected, one was slightly relieved (this might easily have been psychological), and the remaining three were definitely improved, though for only three weeks in one of these. Such failure is probably explained by several factors. Pathological change in the sympathetic nerves adjacent to a carcinoma is early and extensive (Pereira 1946, Dargent, 1948; Jiano *et al.*, 1928), and may have already spread proximal to the operative site. Sensory impulses might also be conveyed by way of the lumbar sympathetic chains and the sacral parasympathetics, both of which remain intact, and high lymph nodes may cause local pressure on the lumbar and thoracic cords. These same trunks may also be the site of interstitial sclerosis—a common result of deep radiotherapy; and this intraneural pressure is undoubtedly a cause of intractable neuralgia referred to the pelvis. Too much should therefore not be expected in these cases, but in suitable patients the operation is well worth a trial.

Ovarian Sympathectomy

In some cases of dysmenorrhoea the cause of the pain is ovarian, as shown by its characteristic distribution, its persistence after uterine denervation, and its elicitation on bimanual compression. For this syndrome, which Browne (1939) states accounts for nearly 12% of all cases of dysmenorrhoea, he advocates section of the ovarian nerves. The operation has also been applied successfully to cases of severe ovulalgia, and as a palliative in ovarian endometriosis.

Technique.—The ideal operation postulates a systematic dissection of the ovarian nerves as they lie within the folds of the infundibulo-pelvic ligament; but this is rarely possible, for they lie intertwined with the complicated ovarian venous plexus, and haemorrhage is an invariable accompaniment. Apart from obscuring the operative field, this is usually uncontrollable by individual ligation, so that the ligament itself must be tied at a higher level. The only practical procedure, therefore, is to divide the whole ligament near the pelvic brim after mass ligation, and this is the one generally adopted.

Results. There is no doubt of the value of the operation in some carefully selected cases. Browne reports cures in 10 of 16 patients with ovarian dysmenorrhoea, and though most surgeons will disagree with his estimate of the frequency of the condition the occasional case encountered is gratifyingly relieved. The operation is also useful as an adjunct to conservative operations on the adnexae, particularly where pain has been a marked factor, as in endometriosis, and I have had good results in three such cases. Severe ovulalgia—"mittelschmerz"—is a rare condition, and is due to tubal hypercontraction, excessive follicular spill, or pressure on the circular nerves which embrace the distended follicle (Davis, 1939). Where this last factor is the cause ovarian denervation gives an immediate and surprisingly complete cure.

It is, however, questionable whether the advantages of this operation outweigh its possible dangers. It certainly delays follicle development in dogs, and, though the hormonal function of the human ovary appears to be independent of its nerve supply, the latter is so rich that it must be assumed to have some important controlling role. Interruption of the main vascular supply to the organ must similarly exert an adverse effect on its function. The operation should therefore not be undertaken in young nonparous women, except for the most urgent indication, and should generally be reserved for the few selected types described above.

Alcohol Injection of the Pelvic Plexus

This operation was originally introduced (Davis, 1936) with the object of blocking the nerve pathway to the uterus at its nearest externally accessible point.

Rationale.—The pelvic plexus is the main uterine ganglion, receiving the bulk of the nerve supply designed for that organ. It is formed by the confluence of the inferior hypogastric plexus and the nervi erigentes, the former carrying abdominal sympathetic and the latter sacral parasympathetic fibres, and the nerves are distributed to the uterus in the form of several fine strands emerging from the anterior border of the plexus. It thus presents an ideal site for direct and complete interruption of these pathways, for practically the whole of the uterine nerve supply is here concentrated in a comparatively small area.

The plexus is a large flattened mass of nervous tissue lying in a fairly compact sheet at the side and in front of the ampulla of the rectum. From here it stretches forward to the uterus in the form of long tough fibres which enter the organ just above the cervix. It lies immediately beneath the floor of the pouch of Douglas at its posterolateral angle and above the corresponding lateral vaginal fornix, the lowest part being contained within the folds of the utero-sacral ligament. The ureter crosses its superior border, and the uterine artery lies close to its lateral surface, the internal iliac vessels passing behind and below.

Indications.—The method is primarily of value in cases of severe spasmodic dysmenorrhoea which have failed to react to medical treatment. In these it should be combined with cervical dilatation, which, as I have shown elsewhere (Davis, 1933), is itself a type of sympathectomy, for the external os is surrounded by a circular sympathetic plexus rupture of which is the basic factor in the pain relief obtained by this simple procedure. It is also indicated in cases of painful parametritis and vaginal neuralgia, and as an adjunct to cervical cauterization in Young's syndrome of iliac-fossa pain.

Technique.—Under intravenous anaesthesia the cervix is pulled to one side and the opposite lateral fornix exposed by retraction. A strong spinal needle is inserted into the vaginal mucosa at its highest point, 1 cm. lateral to the cervix. The needle is then passed laterally and posteriorly at an angle of 45 degrees to both the vertical and the horizontal planes for 2 cm., being guided to the side of the rectal ampulla by a finger placed in that organ. The needle is then withdrawn for 0.5 cm. and, after preliminary aspiration, 1 ml. of absolute alcohol is slowly injected, the point being kept moving throughout. The needle is then almost completely withdrawn and reinserted into the lateral parametrium just by the side of the supravaginal cervix and a further 1 ml. infiltrated into this area. This last injection, originally advocated by Blos (1929), effectively deals with any fibres which have escaped the original block. The whole procedure is then repeated for the other side. It is important to avoid perforation of the rectum, for cellulitis may follow. This is avoided by keeping the needle-point 0.5 cm. from the organ, as determined by the internal finger. Both the ureter and the uterine artery are medial to the operative field, but constant movement of the needle-point will eliminate the danger of damage to these structures. The amount of alcohol employed is also important, for if the suggested quantity is exceeded there is danger of complete destruction of the plexus, with subsequent urinary retention, for the motor fibres in its upper portion are indispensable for normal bladder function.

Results.—Of 61 cases of primary spasmodic dysmenorrhoea recently reviewed 43 (nearly 70%) were permanently and adequately relieved. (It should be mentioned that five of these had the injection repeated for recurrence after a short interval, but the effect of the second operation was permanent.) Eleven patients were relieved to the extent that the subsequent periods, though still painful, were tolerable, and in the remaining seven there was no appreciable change. These results, though far from perfect, show a considerable advance on those obtained from simple cervical dilatation, which cures an average of 20% of patients, and the operation should be utilized for all primary spasmodic cases which remain unrelieved by medical and physiotherapeutic measures.

Intrathecal Alcohol Injection

Intraspinal alcohol injection was introduced by Dogliotti in 1931 for the relief of intractable neuralgia, and it has since been applied successfully by Stern (1934), Greenhill and Schmitz (1936), Todd (1937), and others to cases of cervical carcinoma.

Technique.—The patient lies on the side, with the body inclined to the prone position and the back arched as much as possible. The table is tilted to an angle of 15 degrees, the head end being lower. A procaine weal is raised over the interspace between the fourth and fifth lumbar spines and a spinal needle inserted into the subarachnoid space. Absolute alcohol is then injected very slowly to a total quantity of 0.5 ml. without admixture of cerebrospinal fluid. The patient remains in the same position for an hour before being returned to bed, and the whole procedure is repeated for the other side after an interval of 10 days.

The method is an extremely easy one, requiring the minimum of preparation and apparatus, and it has the additional advantage (as emphasized by Greenhill) of being applicable to bed-ridden patients at home. But it carries several disadvantages: incontinence of faeces and urine is a not infrequent sequel, and other paralytic complications resulting from cord damage are occasionally seen. The operation is therefore restricted to cases of inoperable carcinoma. Complete relief of pain is also by no means guaranteed in spite of the somewhat optimistic reports of some of the earlier workers (Saltzstein, 1934; Stern, 1940) and it is noteworthy that Greenhill (1947), one of the pioneers in this field, has reduced his estimated relief rate from 92% in 1935 to somewhat "more than half" in 1947. However, when the operation *is* successful the completeness and permanence of the pain relief are extremely gratifying, and the patient is in addition saved from the depression and mental stultification incidental to prolonged morphinization.

Subarachnoid alcohol injection is therefore indicated in all cases of visceral pain arising from incurable pelvic carcinoma. I have recently advocated reinforcement of this procedure with simultaneous alcohol injection of the pelvic plexus, and the combination, where practicable, seems to give considerably better results.

Intraspinal Sulphate Injection

To circumvent some of the difficulties inherent in alcohol injection Bates and Judovich (1942) substituted magnesium sulphate. While adequately destructive to nervous tissue it is much less so than alcohol, and therefore may be used in larger quantity and over a greater area.

The *technique* consists in the intraspinal injection of 250 mg. of ammonium sulphate dissolved in 5 ml. of sterile water after preliminary spinal procaine analgesia to minimize the pain of injection. The third interspace is employed, and the patient subsequently sits up to allow of caudal diffusion of the heavy solution.

The originators of this method are optimistic of its permanent benefit, but in two personal cases the pain of injection was worse than the original complaint, and in neither was there a reasonable degree of subsequent relief. Bourne and Williams (1945) cite similar disappointing results in their own cases, but, as they state, it is yet too early to form a final opinion, particularly as other workers have been more favourably impressed.

Section of the Utero-sacral Ligaments

This is the original pelvic sympathectomy, and was first advocated in 1899 by Jaboulay, who ruptured the pelvic parasympathetic nerves by serum injection and blunt dissection of the retrorectal space. It was at first received enthusiastically, but rapidly fell into desuetude as the result of the frequent and severe complications following the somewhat crude avulsion technique of the earlier surgeons. The operation was revived and modernized by Condamin in 1927, and since then this worker, together with Molin, has published several reports describing excellent results in a variety of painful pelvic conditions.

Rationale.—The posterior parametrium of the utero-sacral folds contains the utero-sacral ligaments proper, some smooth muscle, fine blood vessels and lymphatics, and numerous nerve bundles lying in loose fibro-fatty areolar tissue. The nervous element consists of the lower border of the pelvic (Lee-Frankenhauser) plexus and its forward branches to the uterus, and so comprises the main supply to that organ. These postganglionic nerves are easily accessible in the anterior part of the utero-sacral ligament, and intervention at this level would appear to be the ideal uterine sympathectomy.

Technique.—The ligaments may be divided from above, but this is justifiable only when laparotomy has been performed for the correction of some basic pathology. Otherwise the vaginal approach is indicated. In this the posterior lip of the cervix is seized with vulsellum forceps and pulled downwards and forwards so as to put the utero-sacral ligaments on the stretch. A semicircular incision is made through the vaginal epithelium at the level of the cervico-vaginal junction from the base of one broad ligament to the other. The subjacent parametrium behind the uterus is separated by finger-swab pressure, leaving the utero-sacral ligaments free and more clearly defined. They are then cut away with scissors from their somewhat wide insertion into the uterus, and the free ends further separated by blunt dissection to prevent subsequent regeneration. The operation is technically very simple, but haemorrhage from small vessels is usually troublesome and difficult to control. Ligation is complicated by retraction of the cut end, and the tedious swab pressure required is a poor substitute. Sometimes this is quite ineffective, and blood collects in the posterior parametrium, forming a large haematoma which usually becomes infected.

Indications.—Utero-sacral resection is of value in intractable dysmenorrhoea, but is mainly indicated for the relief of what may be called the "posterior parametritis syndrome." The basic pathology of this condition is a utero-sacral lymphangitis secondary to cervicitis, with diffuse inflammation, perineural sclerosis, and smooth-muscle spasm. The prime resulting symptom is chronic low backache aggravated by walking, menstruation, and coitus, and examination reveals the tender, contracted cord-like ligaments.

Results.—The efficacy of the operation is controversial. Louros (1927) obtained 12 cures in 14 patients with posterior parametritis; Molin and Condamin (1929a) give no definite figures, but claim success in "the majority" of cases; and Freund (quoted by Cotte, 1929) in a review of the literature states that on the whole the results are satisfactory. Schockaert (quoted by Cotte, 1929), on the other hand, gave up the procedure after six attempts, in none of which was he successful in producing the slightest symptomatic benefit; while Molin and Condamin (1929b) have reported two cases of subsequent re-formation of the divided ligaments by a painful fibrous band, so that the patients were actually worse than before. Cotte (1929) reports similar failure in 12 cases. This discrepancy is probably due to variation in the depth and extent of the sympathectomy. The nerves are distributed over a fairly wide area within the utero-sacral folds, and unless the dissection is thorough the majority will escape intact. Most surgeons are chary of this type of blind manœuvre, and are inclined to limit it to the visible minimum, with the result that the actual neurectomy is a relatively small one. Individual anatomical variations also undoubtedly play a part. My own results in four cases have been disappointing, probably as a result of these factors.

In spite of these deficiencies, however, utero-sacral section retains some of the best features of the ideal sympathectomy, for it is an easy, minor, and relatively safe procedure. In carefully selected cases, and after preliminary procaine analgesia to test the ultimate result, the efficacy is undoubted, and if the dissection is kept well forward there should be little danger of inclusion of vesical or rectal filaments or of damage to the ureters and uterine arteries. Remote complications are rare, and menstruation, pregnancy, and parturition are unaffected, and as the ligaments appear to play little part in supporting the uterus (Segond, 1926) prolapse is not a sequel. The operation therefore seems worthy of more extended trial.

Utero-sacral Alcohol Injection

This is a good though temporary substitute for resection, and is indicated for the same conditions. It is also a useful adjuvant to pelvic plexus injection, catching any filaments that may have escaped the primary needle.

The technique is simple, and consists merely in the injection of 0.5 ml. of absolute alcohol into the uterine end of each ligament, identified by strong anterior traction on the cervix. The alcohol must be placed superficially, to avoid involvement of the adjacent ureters, and medially, to escape the uterine vessels.

I have found this procedure particularly valuable in cases of painful utero-sacral spasm complicated by coitus interruptus. The dyspareunia disappears immediately and relief of the spasm allows of resolution of the contained subacute inflammation.

Epidural Block

Epidural procaine analgesia, used extensively in obstetrics, has been employed with moderate success in cases of uterine carcinoma by Todd (1937) and, more recently, by Kenny (1947), the latter using a long-lasting preparation.

Technique (Kenny).—With the patient in the left lateral position the skin and deep tissues over the caudal opening of the sacral canal are infiltrated with 2% procaine. A stout 3-in. (7.5-cm.) needle is directed to the aperture at an angle of 45 degrees to the skin and the fibrous membrane covering it pierced; the needle is then depressed to an angle of 15 degrees and pushed steadily on until about 1 in. (2.5 cm.) of its length is lying freely movable within the canal. Then 50 ml. of warmed proctocaine (a 1.5% solution of procaine in arachis oil) is very slowly injected, the procedure lasting about 10 minutes.

This method has the advantage of relative safety, but anatomical variation in the configuration of the sacral canal often makes the approach difficult and sometimes impossible. In addition the relief obtained is generally of short duration, though Kenny's results show that the prospects of more permanent amelioration are better when longer-acting analgesics are employed.

Paravertebral Block

It has been shown experimentally by Cleland (1933) that the afferent sympathetic fibres from the uterus enter the cord through the 11th and 12th thoracic roots, and that section of the corresponding roots and their rami communicantes in dogs has no apparent adverse effect on parturition. Shumacker noted by chance that a patient with bilateral lumbar sympathectomy underwent an almost painless labour, and he and his colleagues (1943), Jarvis (1944), Cleland, and others have since produced a similar analgesia by procaine block of the sympathetic chain at the level of the first and second lumbar ganglia. (The method was originally described by Delliapiane and Badiano in 1927, and the credit of originality must be given to these workers, but unilateral block only was then advocated, with correspondingly incomplete effect.)

Technique.—With the patient sitting up and bent forward a spinal needle is inserted at a point 5 cm. lateral to the first lumbar spine. It is then inclined inwards towards the spine at an angle of 60 degrees to the skin and passed between the transverse processes of the first and second lumbar vertebrae until the vertebral body is touched. The depth of this point varies from 7 to 11 cm. (Jarvis), but it is fairly easily identified. The needle is then straightened to an angle of 90 degrees to the skin and passed by the side of the body for a further 1.5 cm.; 25 ml. of a 2% solution of procaine is injected into this area after aspiration and the whole procedure repeated on the other side. As a rule it is only necessary to block the second ganglion, but in cases presenting technical difficulty or in which analgesia is imperfect the third and fourth should also be done (Flothow, 1935).

The great disadvantage of this procedure is its impermanence, for the longest period of analgesia obtained is two hours. During labour it can, of course, be repeated and adequate relief provided, but for the generality of painful conditions this temporary analgesia is obviously useless. Its main indication would seem to lie in the determination of whether pain is of visceral origin or not. If the pain of dysmenorrhoea, pelvic neuralgia, or carcinoma is abolished by paravertebral analgesia it will very likely be permanently relieved by presacral neurectomy; if not, the operation is contraindicated.

Paravertebral *alcohol* injection in the same situation has been suggested by Pereira (1946) for the relief of neuralgia secondary to pelvic malignancy, but as yet no surgeon has been intrepid enough to attempt it. In quite hopeless cases, however, where the expectation of life is very short, the method might well be worthy of trial.

Cordotomy

Section of the lateral spino-thalamic tracts, one of the earliest neurosurgical procedures, is advocated by Shannon (1945) as the ideal operation for pain due to pelvic carcinoma. Complete and permanent relief is certainly ensured by this procedure, but, involving as it does a tedious laminectomy and delicate intraspinal manipulation, it is doubtful whether the operation is applicable to any but a very few cases.

Conclusions

The initial enthusiasm with which most of the operations discussed above were greeted was bound to provoke a compensatory disappointment, particularly when it was found that pain of all types was not inevitably cured by sympathectomy. But the third phase of critical analysis has now been reached, and this leaves no doubt of the permanent value of these procedures. They are themselves easy of performance: the secret lies in careful case selection. Given this, and the equally careful application of the appropriate operation, the great majority of cases of pelvic pain can be adequately relieved in one way or another, and it is more than justifiable to give these patients the benefit of such relief. Too many women suffer from much unnecessary pain, and the results of sympathectomy are now good enough to warrant its more extended application.

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PETHIDINE AND SCOPOLAMINE IN LABOUR

BY

HILDA ROBERTS, M.R.C.S., D.A., D.C.H.

Registrar in Anaesthetics, Obstetric Department, Postgraduate Medical School of London

Pethidine and scopolamine have been used for obstetric analgesia in the obstetric department of the Postgraduate Medical School of London during the past two years. Scopolamine was employed in addition to pethidine in order to secure a more certain analgesia than can be obtained with pethidine alone. The experience of others has demonstrated the safety of pethidine, but at the same time it has become apparent that in a relatively high proportion of cases the analgesia induced by it alone may be inadequate (Barnes, 1947; Cripps, Hall, and Haultain, 1944; Gallen and Prescott, 1944).

Our aim has been to provide rest and sleep during the latter and more painful part of the first stage of labour and to give relief during the second stage without impairing the patient's power of co-operation. There has been no hesitation in complementing the pethidine and scopolamine with gas-and-air or "trilene" inhalations if necessary during the second stage or during the actual delivery. There were 2,651 deliveries in the department from Oct. 1, 1946, to Dec. 1, 1947, and in 885 of these the mothers received pethidine and scopolamine; 500 of the latter group were personally observed, and these form the material of this communication.

Except for five cases of toxaemia of pregnancy, one patient with hydramnios and mitral stenosis, and two cases of mild ante-partum haemorrhage of undetermined origin, all the cases were normal. We do not regard pethidine and scopolamine as contraindicated in toxaemia. In fact, it is only in eclamptic cases that pethidine and scopolamine are not given, because these need a more intensive sedation.

The 500 cases include four twin pregnancies and one set of triplets, making 506 infants in all. There were 378 primiparae and 122 multiparae.

Dosage

When the administration of pethidine and scopolamine was first introduced into this department the following rules were laid down for guidance: (1) Labour must be established before administration of analgesia. Uterine contractions must be of good amplitude and occur at regular intervals. (2) Dilatation of the os uteri must have reached at least three fingers in a primipara and two fingers in a multipara.

The first dose consists of pethidine, 100 mg., and scopolamine, 1/150 gr. (0.43 mg.), intramuscularly. A second similar dose is given one hour after the first, but its administration must be judged according to the merits of each case and in relation to (*a*) the rate of dilatation of the os uteri, and (*b*) the degree of dilatation one hour after the first dose. If the os is rather more than three-quarters dilated it is not advisable to give the dose unless pethidine alone is given.

Subsequent doses can be given at intervals of four to six hours; however, if possible scopolamine is not given within two hours (at least) of delivery, as it may promote some non-cooperation of the mother and some respiratory depression of the infant. The maximum dosage of scopolamine in this series was three doses each of 1/150 gr., and it was given over a period of 18 hours together with 400 mg. of pethidine. The labour lasted 33 hours altogether. It has been found that the intervals between the doses are lengthened as time and labour go on, the amount and frequency varying with each patient. The maximum amount of pethidine used in a single case in this series was 500 mg., and this was given over a period of 30 hours together with two doses of scopolamine, each of 1/150 gr.

Route of Administration

The drugs were generally given intramuscularly, but if the patient was suffering unduly and immediate relief was required the first dose was given intravenously, at least three minutes being taken over the injection. Subsequent doses were given intramuscularly. Schumann (1944) recommends intravenous administration if the patient is expected to be delivered in two hours. For three months pethidine has been administered intravenously at full dilatation of the os, and also in the second stage up to within 10 minutes of delivery, without adverse effect on the foetus. The dose of 100 mg. is diluted with either sterile distilled water or sterile normal saline to double its former volume and is given over a period of three minutes or more to avoid the subjective symptoms of nausea, vomiting, and dizziness. This was used to show that women need not be deprived of adequate relief from pain although they might be well advanced in labour on admission to hospital, and this method was found to be very satisfactory. The patient is eased of her pain to a marked degree, and gas-and-air or gas-and-oxygen is given during the delivery if necessary.

Two years' continued use of pethidine and scopolamine as an analgesic during labour has shown that a large percentage of the cases require only the first dose or the first dose plus 100 mg. of pethidine one hour later. An analysis of the dosage given to the 500 cases is shown in Table I. It will be seen that the majority of cases required only the smaller doses of pethidine and scopolamine; this is particularly noticeable in the multiparae, although at least 12 primiparae who received pethidine, 100 mg., and scopolamine, 1/150 gr., would have benefited from another dose of 100 mg. of pethidine.

TABLE I.—*Dosage*

Pethidine	Scopolamine	Primiparae	Multiparae
100 mg.	1/150 gr.	153	70
100 ,,	1/100 ,,	77	33
200 ,,	1/150 ,,	75	8
200 ,,	1/100 ,,	19	6
200 ,,	1/150 ,, (twice)	26	5
300 ,,	1/150 ,,	12	
300 ,,	1/150 ,, (twice)	6	
300 ,,	1/150 ,, (twice)	3	
400 ,,	1/150 ,,	2	
400 ,,	1/150 ,, (twice)	3	
400 ,,	1/150 ,, (thrice)	1	
500 ,,	1/150 ,, (twice)	1	

Degree of Analgesia Obtained

The degree of analgesia obtained has been classified as follows:

Good.—This includes (*a*) complete relief from pain and complete amnesia; (*b*) complete relief from pain and partial amnesia; and (*c*) almost complete relief from pain and no amnesia.

Satisfactory.—Here the pain was relieved to such an extent that although the patient could feel it to a mild degree her labour seemed easy.

Fair Only.—In this group the patient gained some relief, but not enough to make the labour easy. Frequently this was due to the fact that the patient had not received enough pethidine and scopolamine; these cases are mainly primiparae who had pethidine, 100 mg., and scopolamine, 1/150 gr., only, and occurred in our early trials.

All the patients came under one of these headings, so that all of them obtained some relief (Table II). This classification of the degree of relief has been compiled from personal observations of the patients during labour and from their own opinion the next day when questioned. They were encouraged to describe the relief in their own way, and not to give answers to leading questions. The two cases under the heading "difficult to assess" are here described:

TABLE II.—*Degree of Relief Obtained*

Relief Obtained	Primiparae	Multiparae
Good	306	105
Satisfactory	55	14
Fair only	16	2
Difficult to assess	1	1

A 1-para aged 31 was hysterical on admission. She became settled for a few hours after an intramuscular injection of pethidine, 100 mg., and scopolamine, 1/150 gr., but at full dilatation of the os she became unmanageable again and a forceps delivery was necessary.

A primigravida aged 33 was hysterical on admission. She slept after an intramuscular injection of pethidine, 100 mg., and scopolamine, 1/150 gr. The pethidine was repeated with effect. However, she became very uncooperative on reaching the second stage of labour and forceps were applied because of this.

Co-operation of the Patient during Labour

The majority of the patients were co-operative, and even though a large proportion of them were sleepy in the second stage they would "push down" when encouraged. However, it was noticed that patients allowed to lie quietly on their side would push down automatically when the second-stage pains occurred even though they were very sleepy, and labour proceeded without any encouragement from the midwife.

An analysis of the varying degrees of co-operation in the 500 cases showed that 466 patients were co-operative, 27 fairly co-operative, and 7 non-cooperative.

Of the 27 fairly co-operative patients nine became non-cooperative and tired in the second stage where mechanical difficulties impeded the advance of the head, and all ended as forceps deliveries; one was a primipara breech delivery; 16 would have been more co-operative if more pethidine had been given to increase the degree of analgesia; and one had had three 1/150-gr. doses of scopolamine, which is regarded as a large amount, and she was completely disorientated.

The 7 non-cooperative patients were as follows: One was a Russian who did not speak English. The foetal head was held back by a rigid perineum. When questioned the next day she did not remember anything of her labour. One had a reaction to scopolamine although only two 1/150-gr. doses were given. Two were hysterical on admission, and have been described. Three had a reaction to scopolamine after only one dose of 1/150 gr. They had complete amnesia.

The Excitement Factor in Scopolamine Administration.—It has been explained that four cases were non-cooperative during labour owing to the administration of scopolamine. In these cases the dosage was comparatively small. Three other patients were completely disorientated during the first stage of labour and tended to wander about the labour ward, but they were quite amenable to treatment and have been grouped under the heading of "fairly co-operative" in the second stage. It has seemed to me that the patients who became excitable after the administration of scopolamine were those who had a naturally excitable nature. Therefore the scopolamine is given according to the temperament of the patient and her reaction to the first dose. Complete amnesia is not the object of good analgesia; in fact, it is best if the mother can remember the major part of the labour. The most satisfactory result is where she realizes what is happening but does not feel the pain. Scopolamine is given only to increase the effect of the pethidine and not to produce the marked amnesia of the old twilight sleep.

Condition of the Infants at Birth

Since the introduction of pethidine and scopolamine into the obstetric department of this hospital there has not been an increase in the foetal mortality, and in cases of foetal morbidity the cause could not be attributed to the analgesia given during labour. Among the 506 infants there were three foetal deaths and 37 cases of foetal asphyxia.

Foetal Deaths.—There were two stillbirths and one neonatal death. One stillbirth, the second of twins, had a very rapid delivery, breech presentation; the first twin was in good condition. The other stillbirth was involved in a long second stage (3 hours 20 minutes) and the cord was tightly round its neck. The mother had had 400 mg. of pethidine and two 1/150 gr. doses of scopolamine over a period of 20 hours; the last dose of pethidine was given 3 hours 35 minutes before delivery. The neonatal death occurred in a premature infant of 34 weeks; it was very feeble at birth and lived only 11 hours.

Foetal Asphyxia.—There were three cases of "white asphyxia" and 34 cases of "blue asphyxia." The cases of "white asphyxia" were as follows: (1) The mother was the Russian referred to above. Pethidine, 200 mg., and scopolamine, 1/150 gr., was given. (2) There was a show of meconium-stained liquor in the early stage of labour although the foetal heart was satisfactory until the end of the second stage. (3) This case was due to a very rigid perineum. All three recovered in a few hours. The "blue asphyxia" babies were quiet at birth and rather slow to breathe, or respiration was impeded by the presence of mucus in the air passages. Thus any baby who did not breathe and cry spontaneously at birth has been included in this group. They all recovered completely within 10 minutes. The probable causes of the asphyxia were as follows: prematurity, 4; cord round the neck several times, 4; rigid perineum, 2; forceps delivery for some mechanical obstruction, 11; triplets, 1; and mucus in the air passages in considerable quantities, 10. The maternal mortality was nil. However, some patients suffered from either all or some of the

subjective symptoms which occur after the administration of pethidine—i.e., nausea, vomiting, and dizziness—but the proportion was very small. There were no other reactions suggesting idiosyncrasy to pethidine.

Effect on Length of First and Second Stages

Comparisons have been made between the length of the first and second stages of normal cases receiving pethidine and scopolamine analgesia and similar patients having only gas-and-air or trilene inhalations. They have been classified as follows: (1) All cases receiving pethidine and scopolamine between Oct. 1, 1946, and Dec. 1, 1947. (2) Patients having gas-and-air or trilene inhalations only during the same period of time. (3) Patients receiving gas-and-air or chloroform, using the Young Simpson inhaler, between Oct. 1, 1944, and Dec. 1, 1945; during this time pethidine and scopolamine were not used in the department. Each group has been divided into primiparae and multiparae. The results are shown in Table III.

TABLE III.—*Duration of Labour*

Date		No.	Mean Hours	Difference Between Means	S.D. of Diff. Between Means	t
			Primiparae, First Stage			
1944–5	Gas, etc. ..	816	15·99	3·04	0·57	5·33†
1946–7	Gas, etc. ..	563	12·95	3·13	0·54	5·80†
1946–7	Pethidine and scopolamine	619	16·08			
			Primiparae, Second Stage			
1944–5	Gas, etc. ..	816	1·005	0·016	0·040	—*
1946–7	Gas, etc. ..	563	0·989	0·120	0·044	2·73†
1946–7	Pethidine and scopolamine	619	1·109			
			Multiparae, First Stage			
1944–5	Gas, etc. ..	946	9·17	1·29	0·31	4·16†
1946–7	Gas, etc. ..	737	7·88	3·18	0·54	5·89†
1946–7	Pethidine and scopolamine	199	11·06			
			Multiparae, Second Stage			
1944–5	Gas, etc. ..	946	0·323	0·012	0·105	—*
1946–7	Gas, etc. ..	737	0·335	0·046	0·024	1·92*
1946–7	Pethidine and scopolamine	199	0·381			

* Not significant. † Significant at 1% level.

The four groups of patients seem to follow much the same pattern, and will be considered together. The significant difference between the mean of 1946–7 patients receiving gas, etc., and that of the 1946–7 patients receiving pethidine and scopolamine seems at first to show that the latter combination lengthens labour. But the difference between the mean of 1944–5 patients receiving gas, etc., and that of 1946–7 patients receiving gas, etc., suggests that in fact the 1946–7 patients receiving gas include an unduly large proportion of short labours. Hence the pethidine-and-scopolamine group contains a correspondingly increased proportion of cases of long labour. When the 1944–5 patients are compared with the combined 1946–7 patients, it appears that the combined mean labour time of the latter would be less than that of the former. Thus there is a suggestion that pethidine and scopolamine in fact have the effect of *shortening* labour, if anything. To prove this an experiment designed to show up this effect on its own would be required.

The length of the third stage in the 500 deliveries has been grouped and is shown in the form of a graph (Fig. 1). The incidence of post-partum haemorrhage was 15, two following forceps deliveries, and there were three retained placentas requiring manual removal.

Other Effects

Effect on Uterine Contractions.—In order to investigate the effect of pethidine and scopolamine on the frequency and amplitude of uterine contractions recordings were made on a kymograph with the aid of an abdominal tambour. The abdominal method was used in preference to the intrauterine in order to avoid any false stimulus to the uterus. In some cases the recordings showed a lengthening of the time interval between the first two or three contractions after the injection of pethidine and scopolamine, but there did not seem to be any alteration of rhythm or amplitude. The patient became quieter and slept after the injection, so there were fewer extrauterine excursions recorded on the drum and the picture presented a smoother appearance. When a recording was being made the majority of the initial doses were given intravenously in order to produce the maximum effect in a short time. Figs. 2 and 3 are typical of the results obtained from 35 patients.

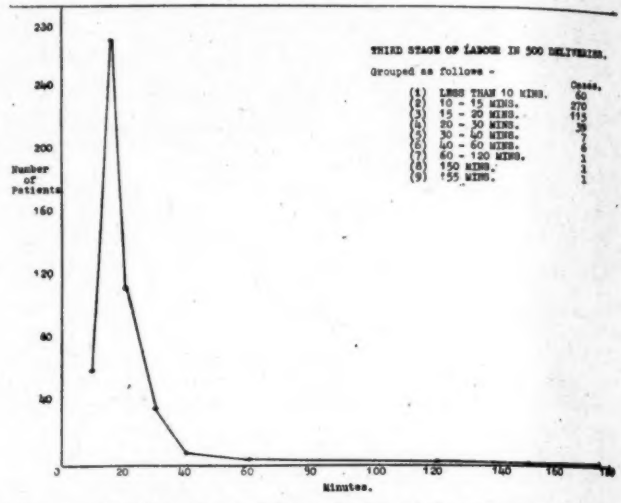
THIRD STAGE OF LABOUR IN 500 DELIVERIES.
Grouped as follows -
(1) LESS THAN 10 MINS. Cases. 60
(2) 10 - 15 MINS. 270
(3) 15 - 20 MINS. 115
(4) 20 - 30 MINS. 39
(5) 30 - 40 MINS. 7
(6) 40 - 60 MINS. 6
(7) 60 - 120 MINS. 1
(8) 150 MINS. 1
(9) 155 MINS. 1
Number of Patients
Minutes.

FIG. 1.—Showing the duration of the third stage of labour in 500 cases.

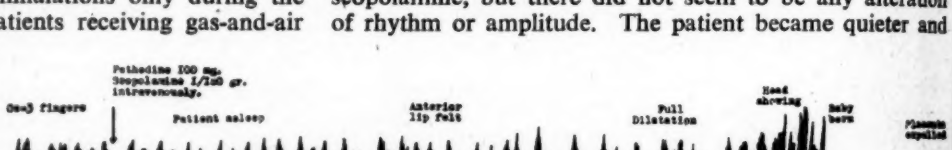

FIG. 2.—Showing the uterine contractions during the first, second, and third stages of labour in a primipara. The relief obtained after the injection of the pethidine and scopolamine was good, the patient was co-operative in the second stage, and the baby was in good condition at birth. The third stage was normal.

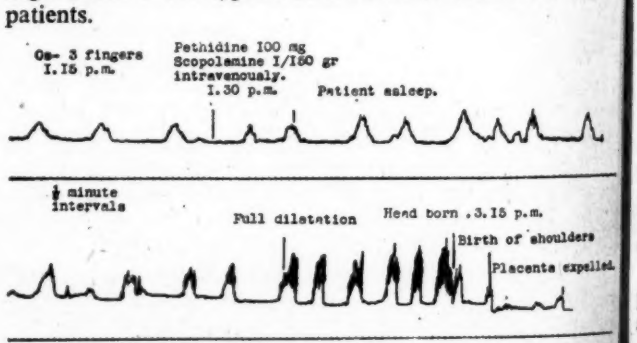

FIG. 3.—Showing the uterine contractions of the first, second, and third stages in a multipara. The patient co-operated well, the baby cried before the shoulders were born, the placenta was expelled satisfactorily, and effective analgesia was obtained.

Blood-Pressure Changes.—In a number of cases blood-pressure readings were taken at intervals of one and two minutes before, during, and after the administration of pethidine and scopolamine, some patients being given intravenous injections and some intramuscular. These records show a short elevation varying between 5 and 30 mm. Hg. in the systolic and a smaller rise in the diastolic pressure. After 10 minutes the blood pressure returned either to normal or to a slightly lower level (Fig. 4). Hori and Gold (1944)

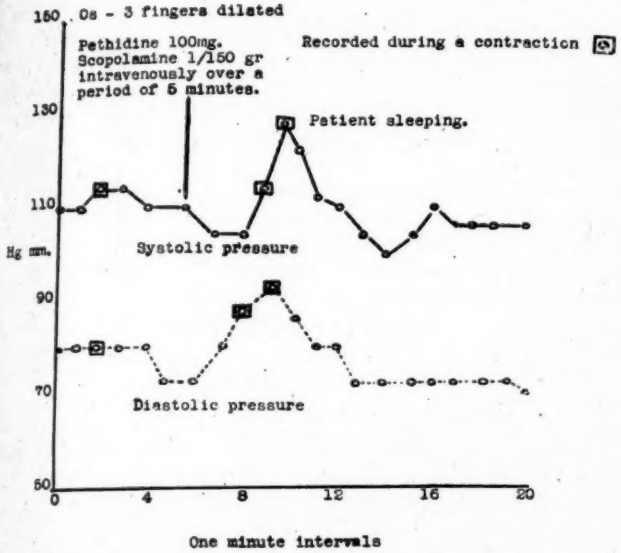

FIG. 4.—Typical graph showing blood-pressure changes on intravenous administration of pethidine and scopolamine during labour.

found that pethidine and scopolamine caused a fall of 40 mm. Hg in the systolic pressure and an acceleration of the pulse rate when given intravenously. Perhaps these occur with rapid intravenous injection, as such fall in blood pressure and rise in pulse rate are common to any form of rapid intravenous assault.

Respiratory Changes.—According to Batterman and Mulholland (1943) respiratory depression is rare in patients treated with ordinary doses of pethidine. In the present series no maternal respiratory depression was noticed, and Fig. 5 shows the respiratory excursions of a

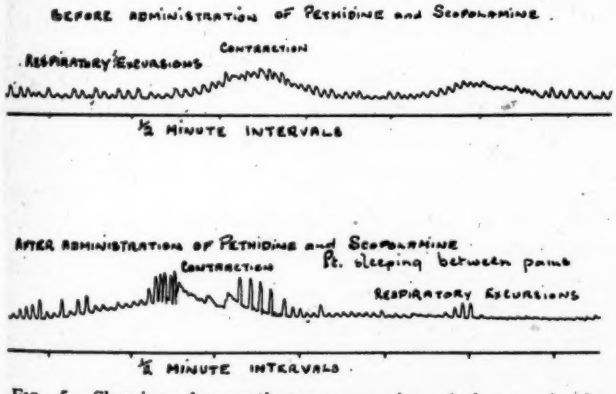

FIG. 5.—Showing the respiratory excursions before and after administration of pethidine and scopolamine. When the patient was sleeping the abdominal respiratory movements were quieter but she showed no signs of respiratory depression.

patient who had received pethidine and scopolamine. These are typical of the results obtained.

Incidence of Forceps Deliveries.—In the 500 cases there were 23 forceps deliveries. The reasons for instrumental delivery were: obstetric causes, 19; maternal distress, 3—2 were hysterical and 1 was of pre-eclamptic toxaemia; and foetal distress, 1—on delivery it was found to be a deep transverse arrest and a lateral placenta praevia. Meconium-stained liquor was the first indication of foetal distress. In none of these cases could the application of forceps be said to be due to the analgesia.

Conclusions

Observations made on the analgesic effects of pethidine and scopolamine during labour have shown that this method is very effective in relieving the pains of childbirth. Provided that labour is established and the dosage is given according to the stage and the rate of progress of the labour no untoward results occur. The addition of scopolamine increases the effect of the pethidine, and its usefulness far outweighs the very occasional excitement which may occur. If the dose of scopolamine is small, co-operation can be elicited from most patients in the second stage with a little encouragement from the midwives. The fact that the midwives working in the labour ward in this hospital have been and are most enthusiastic about the administration of pethidine and scopolamine during labour shows that their work has not been complicated by uncooperative patients and asphyxiated babies.

The results from both the maternal and the foetal aspects are gratifying, and a large number of women have expressed their delight at childbirth being made so pleasant. It is important to emphasize that the amount of pethidine and scopolamine given should be the minimum that will afford effective relief, and each patient is judged according to her reaction to the first dose. Encouraging words and an explanation of what is being done go a long way towards making the analgesia a success.

Summary

A series of 500 cases receiving pethidine and scopolamine during labour have been observed. The degree of relief obtained was good in 82.2%, satisfactory in 13.8%, and fair only in 3.6%. Two patients were difficult to assess. The results do not show any increase in either maternal or foetal mortality rates, and the incidence of post-partum haemorrhage is not raised.

I would like to express my gratitude to Professor James Young for permission to publish these cases and for the advice and encouragement he has always given. I am indebted to my assistant, Sister K. Kane, midwife-analgesist to the department, whose conscientious and loyal help has made this investigation possible, and to the nursing staff of the labour ward, who have shown themselves anxious to relieve the pain of childbirth. My thanks are due to Dr. Wootton, of the Department of Biochemistry, for help and advice with statistics.

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The International Hospital Federation has invited Capt. J. E. Stone, consultant on hospital administration and finance to King Edward's Hospital Fund for London, to become honorary secretary and treasurer, and the Fund has agreed. The Federation's secretariat will be established temporarily in the Fund's offices at 10, Old Drury, London, E.C.2. The Federation is an international organization established to collect national literature on hospital work and hold congresses, set up commissions, and publish reports in order to improve hospital development and administration. The first international hospital congress will be held in Holland in June, 1949.

COELIAC DISEASE*

BY

WILFRID SHELDON, M.D., F.R.C.P.

Physician to the Hospital for Sick Children, Great Ormond Street; Physician in Charge, Children's Department, King's College Hospital

Few conditions in childhood have maintained their challenge more persistently than has coeliac disease. A satisfactory explanation of the fault that underlies this malady has yet to be made; the course is long, usually extending over years; treatment is apt to be a prolonged trial to all concerned; and the eventual outcome is by no means invariably satisfactory, for, apart from a mortality rate of roughly 10%, in those who survive some permanent dwarfing of height may be a legacy, and in a few cases steatorrhoea may continue into adult life.

Coeliac Syndrome

Coeliac disease is not the only cause of steatorrhoea in young children. Occasionally if tuberculous infection of the mesenteric glands is sufficiently widespread mechanical interference with fat absorption may lead to steatorrhoea, the stools closely resembling those of coeliac disease, and in addition there is likely to be both wasting and some degree of abdominal distension. The history, the presence of palpable gland masses in the abdomen, the response to tuberculin skin tests, and perhaps the evidence of calcification in the mesenteric glands in the *x*-ray film will, however, facilitate the differential diagnosis.

Steatorrhoea with diarrhoea and some abdominal distension may also be associated with infection by *Lamblia intestinalis*. The degree of wasting never reaches that of severe coeliac disease, and examination of the stools for *Lamblia* cysts will distinguish the two conditions. There is also a group of children who exhibit steatorrhoea as an accompaniment to severe and prolonged infection, and in such the character of the stools and the degree of wasting may simulate coeliac disease. As a rule, however, a reduction in dietary fat quickly checks the steatorrhoea, and when once the chronic infective stage is passed the fat in the diet can be restored within a few weeks.

Lastly, the clinical state that results from fibrocystic disease of the pancreas mimics very closely that of coeliac disease, for steatorrhoea, severe malnutrition, and abdominal distension are common to both, yet the two conditions are in fact unrelated, and on clinical grounds alone it is usually possible to distinguish them.

The several conditions enumerated above share in common the symptoms of fatty stools, wasting, and abdominal distension, and it has become fashionable in paediatric parlance and literature to speak of young children who exhibit them as suffering from the "coeliac syndrome." This implies that coeliac disease is not a separate clinical entity but a state compounded of a group of symptoms which can be broken down into various causes. It can, however, be contended that by clinical investigation and laboratory aids it is possible to separate the other causes and to leave a residue of children whose illness conforms to the original clinical concept of coeliac disease. Although it must be confessed that coeliac disease remains an idiopathic condition, the retention of the name is advantageous if only to avoid confusion with other causes of steatorrhoea in young children—a confusion which the term "coeliac syndrome" encourages.

*Read in opening a discussion in the Section of Radiology at the Annual Meeting of the British Medical Association, Cambridge, 1948.

Fibrocystic Disease of the Pancreas

This is the illness most easily confounded with coeliac disease, and the two conditions may therefore be contrasted. The identification of pancreatic fibrosis may be said to date from 1938, when Andersen reviewed the literature and collected a group of 49 cases. Since then the disease has become widely recognized and the literature on the subject has rapidly expanded.

In contrast to coeliac disease, pancreatic fibrosis has a definite tendency to affect more than one member of a family; indeed, a familial incidence occurs in roughly a quarter of the cases. It is rare for coeliac disease to do this, and for more than one child of a family to be affected must be regarded as probably fortuitous. The age of onset is notably different, for, while coeliac children develop normally for several months up to a year or more after birth, those with pancreatic fibrosis present symptoms from birth, and the underlying pathological process probably originates in most cases during intrauterine life. The effect of the disease is to reduce, often to vanishing point, the external secretion of the pancreas, and when this occurs before birth the meconium may be of such stiff consistency as to give rise to symptoms of intestinal obstruction within a few days of birth, often with fatal results. The name "meconium ileus" aptly describes this state of affairs. Among the 49 cases of pancreatic fibrosis collected by Andersen there were two instances of meconium ileus, the first having been described by Landsteiner in 1905. In addition, two infants showed intestinal atresia.

Another point of contrast lies in the state of the appetite. Coeliac children have a notoriously fickle appetite, but infants with pancreatic fibrosis have a good, even voracious appetite, although in spite of this they persistently fail to thrive, and by the time they reach the age of 1 year may be several pounds below their expected weight.

Malnutrition and abdominal distension are notable features in the pancreatic group, becoming apparent within a few months of birth, while the stools tend to be large, loose, pale, and decidedly offensive. These symptoms also characterize coeliac disease, and it can be readily understood that if a child with pancreatic fibrosis is not seen until the age of 1 year or more these features may at first lead to confusion with coeliac disease, although a careful history should suggest the correct diagnosis. A small point, but of some help to those with experience of both conditions, is that the odour of the stools in pancreatic fibrosis is even more repellent than that of the coeliac stool, probably by virtue of the fact that while both stools contain an excess of fat and starch the pancreatic stool also contains unabsorbed and decomposed dietary protein.

In both conditions a barium meal shows a loss of the normal feathery pattern of the small intestine, which is replaced by a clumping of the barium into separate masses of varying size. The rate of passage of the barium to the caecum tends to be accelerated.

Pulmonary Complications

There is, however, a further point of contrast between coeliac disease and pancreatic fibrosis, for in the latter condition sooner or later, and often within a few months of birth, chronic pulmonary suppuration develops. There may be a history of one or more attacks of bronchopneumonia in infancy from which recovery has been all too tardy; in others the lung infection develops without a definite history of acute illness, but eventually the clinical picture is that of bronchiectasis, with production of purulent sputum, breathlessness, cyanosis, and perhaps finger-clubbing. Once this state has developed, the previous

good appetite is likely to be lost, treatment of the lung condition is thoroughly unsatisfactory, and the state of the child steadily deteriorates until in a matter of months or a few years the disease in the chest kills the patient.

Various reasons have been put forward to account for the proclivity to pulmonary complications. These infants have a flat vitamin-A absorption curve, and lack of this vitamin has been supposed to contribute to the liability to respiratory infection; but coeliac children also have a flat vitamin-A absorption curve (May *et al.*, 1942), which in both conditions is ascribed to failure to absorb fat, and yet gross lung disease is not particularly encountered in the coeliac child. It is more probable that the respiratory troubles of the child with pancreatic fibrosis are in the main due to congenital cystic disease of the lungs, the lesions in lung and pancreas being due to a common foetal pathology.

Respiratory infection is so prominent in children with pancreatic fibrosis that it seems probable that, prior to Andersen's article in 1938, children with this condition were regarded as suffering primarily from bronchiectasis or chronic lung infection rather than that they were confused with cases of coeliac disease.

Laboratory Findings

In addition to the clinical distinction between the two diseases, laboratory investigation also reveals decisive differences. Thus Farber *et al.* (1943), in 150 analyses of the pancreatic enzymes obtained from the duodenal contents of infants and children, showed that trypsin, lipase, and amylase were produced in normal amounts by coeliac children but were either absent or very much reduced in children with pancreatic fibrosis. Herein lies an important method of differentiation. As regards lipase, the technical difficulties in its estimation and the wide range of values obtained from control cases prevent the assay of this enzyme from being used for the routine confirmation of the diagnosis of pancreatic fibrosis. As to amylase, its very low production by infants under 6 months of age and the fact that amylase from the saliva may be recovered from the duodenum, particularly when gastric hypochlorhydria is present as often happens in coeliac children, make the evaluation of this enzyme unsuitable as a diagnostic aid. The presence of trypsin is, however, easy to estimate by its digestive effect on a standard solution of gelatin, and at the present time lack of trypsin in the duodenal juice is the criterion upon which a diagnosis of pancreatic fibrosis is acceptable.

Further evidence of failure to digest protein has been furnished by West *et al.* (1946), who showed that there is a normal blood amino-nitrogen curve following ingestion of such proteins as casein and gelatin. Infants with coeliac disease have a normal curve; those with pancreatic fibrosis have a flat curve after ingestion of either casein or gelatin, although the curve is normal after ingestion of casein hydrolysate, and a combination of pancreatin with casein tends to restore the curve towards normal.

The advantage of pancreatin in the treatment of pancreatic fibrosis was also pointed out by Shohl *et al.* (1943), who showed that this preparation tended to lower the nitrogen content of the stools but considered that it did not benefit fat digestion, although Andersen (1945) contended that it reduced both the total faecal excretion and the amount of faecal fat. She regards an optimum diet for children with this disorder to be one in which protein provides 25% of the calories, the fact content is low, and carbohydrate is given mainly as sugar, with small amounts of starch for older children. There is clearly an advantage in making casein hydrolysate a regular feature of the diet, and even in infancy not less than 60 gr. (4 g.) of pancreatin (enteric-coated) should be given daily with the meals.

Apart from dietetic management, treatment of pancreatic fibrosis has also to contend with infection in the lungs. This complication affects the prognosis so adversely that every attempt must be made to prevent its occurrence. Good hygienic surroundings and the avoidance so far as possible of droplet infections are obvious measures. It is as yet too soon to assess the prophylactic value of oral penicillin.

Clinical Manifestations of Coeliac Disease

These are too well known to require reiteration, but a review will be given of some commonly held views in the light of recent investigations. Of the many excellent and authoritative clinical descriptions tribute must be paid to Gee's original article in 1888 on the coeliac affection, to Still's Lumleian Lectures delivered in 1918, and to Parsons's Rachford Memorial Lectures of 1932. Still drew attention to the small size of the liver as a common characteristic, and although later authors seldom refer to this feature it is a clinical detail of some diagnostic value owing to its constancy.

Parsons completely summarized our knowledge of coeliac disease up to 1932, and at that date the condition was generally regarded as a well-defined entity. The onset is usually between 6 and 18 months of age (see Chart), and

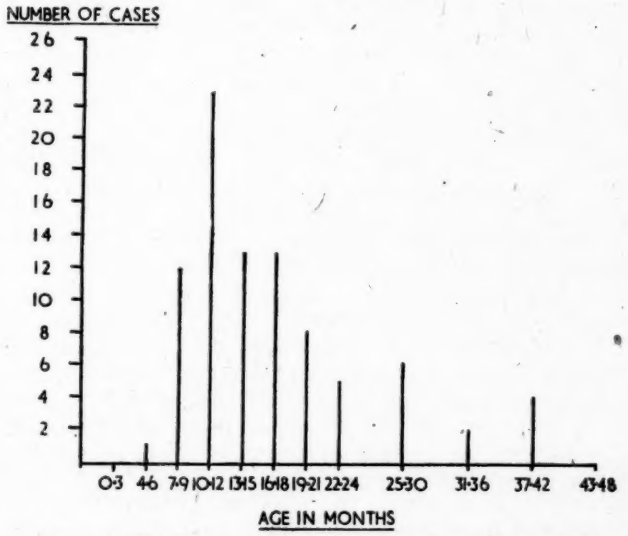

Chart showing age of onset in 87 cases of coeliac disease.

the clinical picture is characterized by a group of symptoms the most prominent of which consist of severe wasting, a striking degree of abdominal distension, and the passage of large, unformed, pale offensive motions containing an excessive quantity of fat, mostly in the form of fatty acids and soaps.

Although it has for long been generally appreciated that starchy foods are badly borne, and indeed Howland in 1921 regarded a failure to manage carbohydrate as the primary trouble, the view that failure to absorb the products of digestion of fat is the principal fault in coeliac disease, other digestive and absorptive errors being of a secondary nature, has for many years had popular support. This view has largely dictated the lines of treatment, of which the first principle has been a severe curtailment of dietary fat. The effect of this has been to diminish the amount of fat excreted in the stools, and the maintenance of a low faecal-fat excretion has been regarded as advantageous. A reduction of starchy food has also proved to be necessary in order to avoid troublesome diarrhoea.

Consequently the dietetic management of coeliac disease has consisted of giving in the first place an almost purely protein diet, followed by the cautious addition of starch—a stage usually difficult to establish because of the liability to diarrhoea. The final stage has been the reintroduction of fat. These stages have always taken months, and sometimes even years, to attain. Throughout treatment the addition of vitamin concentrates has largely abolished the development of deficiency complications, which were at one time a common feature of coeliac disease.

Aetiology

The view that coeliac disease itself, apart from its complications, might be in part a deficiency disorder, has been put forward by May *et al.* (1942), who claimed that the intramuscular administration of crude liver and vitamin B restored the vitamin-A curve to normal and improved the glucose-absorption curve. These substances were much less effective by mouth, suggesting that their absorption from the intestine was defective. In this country Paterson *et al.* (1944) reported favourably on this method of treatment, but others have been less successful, and as daily intramuscular injections are undoubtedly irksome to the children this form of therapy has not gained popularity.

There are certain points in the history of coeliac disease which should be borne in mind when seeking for an adequate aetiology. For example, it has already been pointed out that in the early months of life, before the illness develops, the infants thrive satisfactorily on a diet of either breast milk or cows' milk, and clearly at that stage the digestion and absorption of the various elements of milk present no difficulty. As there is no starch in milk, amylase is not required by the young infant, but both trypsin and lipase must be present. If failure to utilize fat is eventually to appear, there is no hint of this in the early months, nor does the history of the feeding of coeliac children in early infancy depart in any respect from the routine methods applied to infants in general.

The age of onset of coeliac disease in most cases coincides roughly with the stage when the diet is expanding from milk to mixed feeding. This means the introduction into the diet of new types of protein and fresh forms of animal and vegetable fat, but the greatest change at this age is the addition to the diet of starch in rapidly increasing amount. In this connexion it is of interest that analyses of duodenal juice (Farber *et al.*, 1943 ; Andersen, 1945) have shown that while trypsin and lipase are present from birth the amount of amylase is negligible in the first three months, but then gradually rises to reach a maximum at about the age of 3 years.

Fat Intake

The view that coeliac children fail to absorb fat is based upon the excretion of excessive amounts of fat in the stools, and the flat vitamin-A absorption curve has been regarded as corroborative evidence of this view. It is, however, open to argument whether the results of faecal-fat analyses justify a sharp reduction of the dietary fat. Fat balances show that in health at least 90 to 95% of dietary fat is absorbed, and at the same time stool analyses in healthy infants and children show that fat accounts for from one-quarter to one-third of the dried stool. Even if the amount of faecal fat were doubled (as often occurs in coeliac disease) it would still be possible for at least three-quarters of the ingested fat to be absorbed ; therefore, unless it can be shown that the steatorrhoea of the coeliac child is harmful and must at all costs be reduced, it would seem illogical to deny them fat in their diet.

The striking degree of abdominal distension in the coeliac child can hardly be due to the high faecal-fat excretion, for in young infants fed on a diet containing more fat than they can tolerate gross abdominal distension is not a clinical feature, nor does it accompany the steatorrhoea associated with liver damage in older children. The distension may be due to some extent to loss of muscle tone, but in the main results from excessive fermentation of carbohydrate, and the diarrhoea to which these children are so notoriously prone is due to carbohydrate fermentation rather than to steatorrhoea.

For the above reasons, while accepting the fact that coeliac children pass an excessive amount of fat in their stools, the view that fat in their diet should be severely reduced is difficult to maintain ; indeed, the evidence would suggest that attention ought to be directed primarily towards their difficulty with starches. This attitude has been developed by Andersen (1947), who considers that the steatorrhoea of coeliac children is not part of the basic process but that the long-recognized clinical intolerance towards starch is of primary importance. She contends that the production of pancreatic amylase is deficient, that feeding of starch leads to excessive excretion of faecal starch in extracellular form, and that a good clinical response follows the elimination of starch from the diet, which should otherwise contain a normal proportion of fat and a relatively high amount of protein. In passing, it is of interest to note that Gee, in his original description, recommended giving good fresh butter and even advised a trial of cream.

The whole question of fat absorption in coeliac children has become further complicated by the new views on the physiology of fat absorption put forward by Frazer (1943). He regards as untenable the older view that all fat requires breaking down to fatty acids and glycerol before being absorbed into the intestinal cell, where it is resynthesized before passing into the lacteal system. He has demonstrated that a proportion of the dietary fat is finely emulsified in the upper intestine and is absorbed as fat particles into the lacteals, then passing via the thoracic duct to the various fat depots in the body ; the proportion of dietary fat which escapes this process is digested to fatty acids and glycerol, these substances being absorbed into the portal system and passing to the liver.

If Frazer's views are accepted, it remains to determine which system of fat absorption is at fault in coeliac children or whether both are defective. In any case, for the reasons given above, the estimation of total faecal fat and its division into split and unsplit proportions loses much of its significance as a guide to treatment, although it may retain some diagnostic importance. Clearly a knowledge of the amount of dietary fat which a coeliac child absorbs is of far greater value than estimations merely of faecal-fat excretion, but for this information fat balances must be carried out. As a guide to treatment these should replace the customary estimations of faecal fat.

Mention must also be made of the flat oral-glucose absorption curve which is so characteristic of coeliac disease. Intravenous glucose given to coeliac children is metabolized at a normal rate and the flat oral curve is generally taken to indicate difficulty in the absorption of glucose from the intestine. This view has been attacked by Emery (1947). He has shown that, while in coeliac children the fall in blood sugar induced by insulin follows the usual pattern, the subsequent return to a normal level fails to materialize, although it can be restored by giving glucose orally. The effect of adrenaline on the blood-sugar level gives a smaller and slower response in coeliac children than in normal controls, although if glucose is given by mouth at the same time as the injection of adrenaline a normal response ensues. For these reasons he argues that coeliac children absorb glucose normally and utilize it

normally; he explains the flat oral-glucose curve as being due to lack of available glycogen in the body, with the result that oral glucose is utilized by the liver as fast as it enters the portal system.

Summary

It is contended that coeliac disease maintains to-day its position as a clinical entity, and can be distinguished from fibrocystic disease of the pancreas and from the other causes of steatorrhoea in childhood. To group all these conditions under the term "coeliac syndrome" is confusing. The facts regarding excessive faecal-fat excretion and the flat oral-glucose absorption curve in coeliac children are not disputed, but their significance requires reconsideration.

The view that coeliac disease is due to a defect in the absorption mechanism of the intestine does not as yet rest on a sure foundation. It may still remain to identify the varying clinical conditions that result from a failure to produce any one of the several enzymes required for complete digestion.

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A STUDY OF BREAST-FEEDING IN A MINING TOWN

BY

ENID L. HUGHES, M.B., B.S., M.Sc., D.C.H.

Assistant County School Medical Officer, Northumberland

This work is a study of the incidence of breast-feeding during the five war years, 1941–5, in Newbiggin-by-the-Sea, a small town on the coast of Northumberland, and continues a similar study of the babies born in 1940 (Hughes, 1942).

Many previous surveys of this problem have been weakened by the fact that they cover only part of the community. This is an attempt to study a whole community. Newbiggin lends itself to such an inquiry, as there is a very large attendance at the infant welfare clinic, so that a picture has been obtained of nearly 90% of the infant population. There was no social distinction at the welfare. The curate's wife and the doctor's daughter brought their babies, as did the miners' wives and local "ne'er-do-weels."

The Community Studied

Newbiggin-by-the-Sea—once a fishing village—is now a small town with a population of just over 9,000, mostly concerned in mining. The war did not hit the village very hard. There was frequent passage of enemy planes, and one stick of bombs was dropped (known locally as "Wer blitz"); the population was temporarily swollen in 1943–4 by private evacuees from the South, and in 1942 the call-up began to affect the fathers of the infant population. In 1941, 62% of the fathers of the babies here recorded were miners and 11% were in the Forces; in 1942, 49% were miners and 25% were in the Forces; and in 1945 the figures were 46% miners and 35% in the Forces.

There was no real poverty throughout the period studied, but the larger families were perhaps less well catered for than in other places, since there are no school meals in Newbiggin. The miners' canteen was not well patronized, so that in a large family the mother's nutrition was likely to suffer.

An increase in the number of hospital deliveries is very evident over these five years. In 1940 (Hughes, 1942) midwives delivered 77% of the babies, 11.5% were doctors' cases, and 11.5% were born in nursing-homes or hospitals. By 1943 the figures were 71% midwives' cases and 25% hospital deliveries. In 1945 62% were midwives' cases, 5% doctors' cases, and 32% hospital deliveries. This change was mainly due to the difficulty of getting help in the home. Even so, it will be seen that the great majority of deliveries were by midwives.

Present Investigation

The babies here studied are those born of Newbiggin parents in 1941–5 inclusive and continuing to live there till at least 6 months old. (This excludes the babies dying before the age of 6 months, evacuee babies born elsewhere, and babies whose mothers came to Newbiggin for the birth and moved soon afterwards.) Of the babies thus defined, 89.4% attended the clinic regularly enough over these five years for details to be recorded of their dates of weaning. The actual numbers are given in Table I. (The drop in 1943 is due to my illness and absence from work for several months.) The figures for 1940, previously published, are included for comparison.

TABLE I.—*Proportion of the Infant Population Studied in each Year*

Year	No. Born and Lived 6 Months	No. Included in Records
1940	117	112 (95%)
1941	114	105 (92%)
1942	137	124 (91%)
1943	116	98 (85%)
1944	146	131 (90%)
1945	100	90 (90%)

The time of weaning is recorded in Table II, including also the 1940 figures. Figures of those completely breast-fed at 3 months are included. Comparison with the percentage weaned by 3 months will give the percentage who had their babies partly on the breast at this age.

TABLE II.—*The Incidence of Weaning*

Year	No. Recorded	Percentage Weaned by				Percentage Completely Breast-fed at 3 Months
		2 Weeks	1 Month	3 Months	6 Months	
1940 ..	112	31		57		32
1941 ..	105	32	40	67	81	30
1942 ..	124	36	45	65	83	25
1943 ..	98	25	34	47	80	30
1944 ..	131	23	37	57	83	30
1945 ..	90	27	40	59	83	24
1941–5 ..	548	29	39·5	59	82	29

This is a very high and maintained proportion of early weanings, and exceeds any other published figures I have seen.

Among those weaned by 2 weeks there is the same proportion of first babies (47%) as among the whole number recorded. It is usually stated that babies delivered by midwives are breast-fed more successfully than babies born in hospital. Here, however, 32% of all the babies delivered by midwives and 20% of those delivered in hospital were weaned by 2 weeks.

Reasons for Very Early Weaning

An attempt was made to assess the reasons for weaning before 2 weeks (162 cases, 29%). The mothers were not pressed for an explanation if they seemed unwilling, nor was there time for a detailed history of the failure of lactation. In some cases undoubtedly the full story was not given by the mother, as reference to her midwife afterwards showed. Table III gives the reasons as stated by the mothers. Some points about this table are of interest.

TABLE III.—*Reasons for Early Weaning*

Illegitimacy	12
Mother's serious illness	12
Child's illness or abnormality	3
Mastitis or trouble with nipples	12
Fear of recurrence of illness (usually mastitis)	7
Difficulties with baby at breast	13
Worry	4
Mothers' refusal to breast-feed	7
Domestic demands	13
Reason difficult to establish	79
Total	162

Of the 12 who weaned on account of mastitis or trouble with the nipples, eight were primigravidae. This seems important, as the fear of a repeated mastitis is a potent discouragement in attempting to feed a second child. When the baby had difficulties at the breast—e.g., sleepiness or fighting with the breast—breast-feeding was often given up after only three or four days of trial. Of the women who said they did not want to breast-feed four were primigravidae. Reasons given were, "Want to get about," "Too embarrassed," "Too old at 46." However, the most striking thing is that for nearly half the women who weaned by 2 weeks no reason was satisfactorily established.

It was felt that the views of the "people on the job"—i.e., the midwives—were important in studying this problem. There are three midwives working in Newbiggin. Two are employed by one nursing association, towards which the colliery subscribes. The elder of these midwives has been working for 22 years in Newbiggin and the patients "are able to tell her anything." She and her young assistant are quite sure that a large number of young mothers do not wish to breast-feed because it ties them, prevents them going to dances and the pictures, and may spoil their clothes. She thinks this began when the dried milk became cheap. She knows many cases where the young mother is quite open in her determination before the confinement not to feed her baby. In her experience trying to overrule this results only in a breast abscess, as the mother will resort to a bottle when the nurse is not there, and if hospital-confined will wean immediately on coming out of hospital. "They know breast-feeding is the right thing but they won't be tied."

The third midwife is employed by another nursing association and has perhaps a slightly different clientele from the other two. She was a highly trained hospital sister before coming on the district, and has been working here seven years. Although she thinks there is a large element of truth in the views just set out, she sees a social background to much of this early weaning. In her opinion early weaning is much more likely where the mother is living with her in-laws. In such cases there is little chance of privacy, the mother is embarrassed at exposing her breast before her mother-in-law (and possibly other members of the family). The sense of outraged modesty affects the baby, who begins to "winge" (whimper), and in a few minutes the mother-in-law will say, "That's not feeding the bairn; you'll want to get summat that'll satisfy it. Gi'e 't summat in a bottle."

She also points out that in these colliery houses where several men are working shifts there is nearly always a man in bed trying to sleep. The baby must be kept quiet. The baby, in a pram, is usually in the living-room, as these houses generally open on to the pavement and have very small backyards. An older woman may encourage the mother to bottle-feed, as then there is "always a way of hushing the child if the mother is out." This midwife states also that it is "quite impossible" for fisherwives to feed their babies, as the custom is for them to start work on the nets directly they are out of bed.

On this question of the fisherwives, I am indebted to Dr. Stephenson, who has been in general practice in Newbiggin for many years, for the following information: "I fear that some of the young fisherwomen now wean early, but their mothers and grandmothers did not wean until 12 months. So far as I can remember, and from questions put to fisherwomen, these amazingly hard-working women brought up all their children on the breast. They baited at least one line a day (700 hooks), cooked the family meals, produced the children, fed them on the breast, helped to pull the boats up when the men came back with the fish about 11 a.m., helped to carry the fish up, baked the bread, did the washing and ironing, cleaned the house, bathed the children, went to bed about 9 p.m. and got up again about 4 a.m. to get the men ready for the morning's fishing. . . . In the palmy days before the mine, when Newbiggin was a holiday resort, some of the fisherwomen even acted as wet-nurses for the delicate children of visitors."

Comparison with Other Parts of the County

How does Newbiggin compare with other colliery districts? Are these early weanings as common in the rural areas of Northumberland? In order to throw light on these questions a survey was made of the health visitors' records in six areas in the county, covering all the children born in 1944 and 1945 (wherever they were born) and now living—i.e., aged 3 and 4 years—in these areas (620 cases). These records are comparable with each other, but not strictly comparable with the Newbiggin cases, which related to all babies who lived to 6 months.

The information sought was whether the baby was weaned before or after the age of 1 month. It was found, however, that in most districts only 70 to 80% of the cards could give this information, and it was not considered that this was an accurate picture. In one district, however—Allendale, a rural hilly area—96% of the cards had this information, and in one mining area—Shiremoor—with a population very similar to that of Newbiggin, 83% of the cards gave the desired information. These figures are given in Table IV.

TABLE IV.—*Comparison of Rural and Mining Areas (Health Visitors' Records), Northumberland*

District	Total No. Born 1944–5 now Living in District	No. Weaned Before 1 Month	No. Weaned After 1 Month	No. of Incomplete Records
Allendale (rural)	92	20 (22%)	68 (74%)	4 (4%)
Shiremoor (mining)	138	51 (37%)	64 (46%)	24 (17%)

It is clear that these numbers of cases are too few to carry much weight; but it is highly suggestive that Shiremoor, with a mining population very like Newbiggin, has at least as great a proportion of early weanings, and that this is in great contrast to a rural district. It is interesting that in the Allendale district the health visitor reports that most young couples manage to have a place of their own and to avoid living with "in-laws." Not only does this mean privacy but it means that there is no older woman to keep house and give a bottle if the mother goes out. It is obvious that there is no statistical evidence here either to support or to refute this as a predisposing factor in early weaning, and that many other factors may be involved.

Discussion

The large numbers of early weanings in Newbiggin contrast forcibly with other investigations on the subject. The Ministry of Health Report (1944) estimates that 95% of babies born in the district are wholly breast-fed when the midwife leaves. Finlay, quoted by Spence (1938), in a home-visit investigation of 3,000 cases in Edinburgh found that 87% of the babies were breast-fed at the 10th to 14th day. Robinson (1939), analysing 439 Liverpool welfare cases, found that 86% were breast-fed at 2 weeks.

A report to the British Paediatric Association, 1942, on breast-feeding in Birmingham (with special reference to female labour) shows similar figures—e.g., in 1937, in 13% of 4,378 cases the children were not breast-fed at the first visit. Similar figures occur in 1941 and 1942. These investigations, however, do not cover whole populations but deal with selected groups.

Why, then, the Newbiggin figures? In the main work described here the data were collected by me from the mothers at the infant welfare centre. Nearly all the dates of weaning were noted within a few weeks of the occurrence, and in the many cases of weaning by 2 weeks it was noted at the first attendance, usually at 3 to 4 weeks of age. This was done simply as an easy way of getting the facts as soon as possible. Later, however, I began to wonder if it were not a rather important point. In asking several mothers about the feeding of previous children two or three years back I was able to check their accuracy with the week-to-week records kept at the time, and the replies very often diverged from the recorded facts—i.e., the child would be said to be weaned at 3 months when it was actually 5 weeks. Indeed, my own figures for 1943 (see Table II) are open to this doubt, since illness prevented me from collecting some of the data as promptly as usual.

This experience raises a doubt about the accuracy of dates of weaning recorded in large-scale investigations relating to a year or two back. So long as breast-feeding is held to have the moral value referred to in the Ministry of Health Report, so long surely will mothers tend to give an "acceptable" reply when asked about the weaning of their children. Indeed, this moral atmosphere probably colours all replies on the subject. My experience of analysing health visitors' records suggests, too, that the first visit may be at a very variable time after the birth.

Attention has been directed by the work of Robinson (1943) and of Waller (1946) to the physiological mechanisms inherent in lactation. No attempt has been made in this work to assess the factor of overloading (Waller, 1943, 1946) in the early weaning, and it may exist in cases unsuspected even by experienced midwives.

Undoubtedly there seems here to be a large social element. Custom or fashion, overcrowding, lack of privacy, and the presence of an older woman who will quite literally "hold the baby" are all possible contributory causes.

Do colliery districts in other parts of England present similar problems? Is overcrowding a factor elsewhere? Is the desire "not to be tied" an unexpressed but important cause? And is there support in other counties for the suggested difference here between mining and rural areas?

Summary

The incidence of breast-feeding has been studied over five years in a mining town in Northumberland (548 cases, forming 89.4% of the babies born and living there 6 months). It was found that 29% of these babies were weaned by 2 weeks and 39.5% by 1 month of age. These figures are supported by health visitors' records for 1944–5 in another mining area, and a contrast is suggested with a rural area. Further investigation of these differences seems advisable.

The cause of the large number of early weanings is discussed.

I wish to thank Dr. Stephenson, of Newbiggin, for the information quoted, and the health visitors and midwives for their ready help and co-operation. I also thank Dr. Jamieson, county maternity and child welfare officer, for the interest she has shown, and Dr. Tilley, county medical officer of health, for permission to publish this work.

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SURGICAL SIGNIFICANCE OF AORTIC DISSECTING ANEURYSMS

REPORT OF THREE PERSONAL CASES WITH TWO CORRECT ANTE-MORTEM DIAGNOSES

BY

D. P. VAN MEURS, F.R.C.S.

Surgeon, County Hospital, Farnborough

The symptoms caused by aortic dissecting aneurysms occasionally suggest surgical abdominal disease. Although about half the sufferers from this condition succumb in less than 12 hours, it is not uncommon for death to be postponed for over a week, and recovery for a varying period, though infrequent, can occur. Hence a correct diagnosis, or, at the worst, recognition of the condition at operation, would be of great assistance from the point of view chiefly of prognosis and also in the event of any reasonably successful form of treatment being devised.

The condition has rarely been diagnosed ante mortem. Shennan (1934) could find records of only six such cases, although about eight others have been described since. It is possible that more frequent correct diagnoses could be made were the condition borne in mind, and it is felt that a brief summary of the pathology, symptoms, and physical signs, together with the details of three personal cases, would be of value.

Pathology, Symptoms, and Physical Signs

Pathology.—The condition probably arises from a tear in a diseased medial coat (Moriani, 1910), the immediate exciting factor being a temporary rise in blood pressure. Less commonly an atheromatous plaque may determine the site of rupture. Syphilis is rarely associated. The split is most commonly situated in the ascending aorta and occurs less often as the vessel is traced downwards. The dissection is rarely localized and saccular, but usually spreads for a variable distance downwards, and has been known to reach the popliteal arteries (Tessier, 1842). Proximal dissection, though usually slight, may be extensive. Death is usually caused by rupture, most commonly (70%) into the pericardium, but also into the mediastinum, pleural space, peritoneal cavity, or retroperitoneal tissues. The aneurysm may rupture back into the lumen of the vessel, although this course does not necessarily prevent rupture to the exterior. There is little relation between the site of the tear, the length of the dissection, and the time of survival.

Symptoms and Signs.—The onset is rapid, and is often associated with physical or emotional strain. There may be a feeling of something suddenly giving way in the thorax, with a sensation of choking. Sudden pain may be felt in the thorax, abdomen, or back, and it may be substernal, epigastric, or, characteristically, girdle in type. The pain is frequently intermittent, resembling colic, and may be accompanied by nausea or faintness. These attacks of pain

may last for a few hours, and relief is usually gradual. Intervals between attacks may be of hours, days, or even weeks. Attacks of pain probably coincide with extension of the dissection or external rupture. Dysphagia may be an early symptom, but vomiting, haemoptysis, and haemorrhage from the bowel are not common. The onset and subsequent attacks of pain are usually accompanied by a varying degree of collapse.

Other symptoms may be produced by involvement of branches of the aorta or pressure by the aneurysm on surrounding structures. Hence cerebral symptoms, disorders of sensation, gastro-intestinal disorders, weakness, or paralysis may all occur (Moosberger, 1924). The pulse may show some irregularity and there may be a difference between the two sides. Absence or irregularity of the pulse on one side may be of temporary duration only. On the whole, little information is to be got from this examination. Similarly the heart rarely gives helpful physical signs. Left ventricular hypertrophy is usually but not invariably present.

In view of the severity of the symptoms, the abdominal signs are not striking. Slight tenderness and guarding, with perhaps some distension, may suggest abdominal disease. If the abdominal aorta is involved then the aneurysm may be palpable, abnormal pulsation may be present, or the clot arising after rupture may give a detectable mass.

Diagnosis.—The picture is so variable that there are only a few common points which could be labelled as diagnostic criteria: (1) A sudden onset is invariable and usually occurs during conditions which could cause a temporary rise in the systolic blood pressure; (2) the pain is often intermittent, disappearing gradually; (3) abdominal pains are usually epigastric, radiating through to the back, or of the girdle type; (4) symptoms and signs may shift downwards in recurrent attacks; (5) there may be a palpable aneurysm or clot or abnormal pulsation; (6) there may be associated neurological or cerebral symptoms; and (7) thoracic symptoms may be anomalous—e.g., anginal with no history of previous attacks, or resembling those of a coronary thrombosis with a persistently high blood pressure.

Case 1

A man aged 69 was admitted on Feb. 20, 1944. During a fit of coughing on the day before admission he had a sudden attack of pain in the lower abdomen, left groin, and back, associated with nausea, faintness, and numbness of the left leg. A left inguinal hernia, previously reducible, came down and he could not reduce it. The pain was severe at its onset but had since eased considerably. He had not vomited.

The patient was a well-built man and appeared moderately shocked. The temperature was 97° F. (36.1° C.), pulse 85, respirations 25. The heart was enlarged to the left. The blood pressure was 110/60. The hernia was irreducible but did not appear to be the cause of his symptoms. The upper abdominal aorta was markedly enlarged, and there was slight tenderness to the left of the umbilicus. No definite mass could be felt. No neurological signs were elicited. Leaking dissecting aneurysm of the abdominal aorta was diagnosed. His general condition slowly deteriorated. Three days later his scrotum was discoloured, and a vague mass could be felt in the left half of the abdomen extending into the left loin. He died next day.

Post-mortem examination disclosed a dissecting aneurysm involving the whole of the abdominal aorta, with rupture into the peritoneum and hernial sac and into the retroperitoneal tissues. The coronary arteries and aorta showed marked atheroma, and the heart left ventricular hypertrophy.

Case 2

A woman aged 48 was admitted on Nov. 9, 1945. She had a sudden onset of pain two days before admission while putting on her coat. It was in the left subcostal region and radiated through to the back, and was stabbing in character. Next day she vomited several times.

The patient was a well-built woman, rather collapsed. The temperature was 100° F. (37.8° C.), pulse 80, respirations 20. The heart was enlarged to the left. The blood pressure was 145/100 and later increased to 244/100. There was tenderness and guarding in the left subcostal region. Albumin was present in the urine. No definite diagnosis was made. The pain gradually diminished, but three days after admission it recurred over the left chest posteriorly, and three days later this spread to the left lumbar region. The blood pressure was now 190/120. Her condition began to deteriorate, and nine days after admission she was semicomatose. She could just be roused, and complained only of dimness of vision. A pericardial friction rub now became audible and persisted for ten days, while her general condition did not alter much. Radiographs of her chest first showed any change 17 days after admission, when both bases were obscured. Thirty days after admission she became pyrexial and showed signs of congestive cardiac failure, and she died six days later. Numerous investigations were done, with no results worth reporting.

Post-mortem examination showed a fibrinous pericarditis with a hypertrophied heart. The aorta was grossly atheromatous and a dissecting aneurysm started in the transverse aorta and re-entered the vessel 8 cm. above the bifurcation. At the latter point there was a large thrombus in the inferior vena cava. The lungs were oedematous and the liver showed nutmeg changes.

Case 3

A man aged 65 was admitted on Jan. 31, 1946. Two hours before admission, while hurrying to work, he had a sudden onset of severe pain across the upper abdomen, and collapsed in the street. The pain persisted, with occasional acute exacerbations, and radiated through to the back. He had nausea but did not vomit. He was a well-built man showing signs of collapse. The temperature was 97° F. (36.1° C.), pulse 66, respirations 22. The lungs were normal. The heart was enlarged to the left. The blood pressure was 200/140. There was tenderness in the epigastrium and left hypochondrium with slight guarding. His symptoms diminished over the next two days, but then he began to get further severe attacks, mostly at night, lasting about two hours each. These were felt mainly in the epigastrium and radiated through to the back, and made him very restless. By the fifth day after admission his abdomen became rather distended, and, as his bowels had not been opened, he was given two enemata. No result was obtained, and a diagnosis of large-bowel obstruction was considered. However, a further enema produced a good result. The next day the case was thoroughly reviewed. The maximum abdominal tenderness was just to the left of the umbilicus, and for the first time abnormal pulsation could be felt at this point. The blood pressure was 200/125 in both arms, and there were no chest or neurological signs. His general condition was good.

The diagnosis of dissecting aortic aneurysm was then made on the following grounds: (1) sudden onset of pain during exertion; (2) site of the pain and its radiation through to the back; (3) signs of collapse on admission; (4) pulse rate (66) and blood pressure (200/140), excluding a coronary lesion; (5) the difficulty in diagnosing any abdominal disease; (6) the detection of abnormal pulsation to the left of the umbilicus; (7) the shifting downwards of the tenderness; and (8) the intermittency of the attacks of pain and their gradual disappearance. The patient later continued to have severe attacks of pain, partly controlled by morphine, and he died suddenly during an attack nine days after admission.

Post-mortem examination showed a dissecting aneurysm starting in a transverse slit 2 cm. long in the posterior surface of the upper part of the descending thoracic aorta and extending to the bifurcation. There was moderate atheroma of the aorta and coronary arteries. A large clot of blood (1,500 g.) filled the posterior mediastinum and extended behind the left pleura.

Comments

In Cases 1 and 3 the diagnosis could be made without much difficulty. The symptoms remained such that had a correct diagnosis not been made persistent search

for a surgical abdominal lesion might have resulted in a laparotomy. As it was, the prognosis given to the patients' relatives was rather more than guarded. Case 2 was obviously not a surgical case a week after admission. Being wise after the event, it seems strange that this case was not diagnosed, and reference to the case histories of other patients admitted to medical wards with the same condition suggests that correct diagnosis was not impossible.

Summary

Patients with aortic dissecting aneurysms are sometimes admitted into surgical wards.

A brief summary is given of the pathology, symptoms, and signs of this condition.

Three case histories are given, in two of which a correct antemortem diagnosis was made.

It is suggested that a correct diagnosis could be made more often.

Free reference has been made to the excellent symposium on the subject by Shennan (1934).

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LIQUOR PICIS CARBONIS (B.P.)

A CARCINOGENIC AGENT

BY

I. BERENBLUM, M.D., M.Sc.

(From the Oxford University Research Centre of the British Empire Cancer Campaign, Sir William Dunn School of Pathology, University of Oxford)

From our knowledge of occupational tumours in man and from results of animal experiments, coal-tar must be considered among the most potent carcinogens for skin epithelium. Possible dangers arising from its incorporation in therapeutic preparations for dermatological use cannot, therefore, be ignored.

In the early studies of experimental carcinogenesis several investigators (Sternberg, 1923; Lipschütz, 1924; Berghoff, 1928) examined a number of tar-containing therapeutic preparations in use on the Continent and found these to be carcinogenic for mouse's skin. The preparations tested were carboneol (a solution of coal-tar in carbon tetrachloride), lithanthrol (a solution in ethyl chloride and ethanol), and carboterpin (a solution in a mixture of terpenes).

The corresponding preparation in use in this country is liquor picis carbonis (*B.P.*), which consists of a 20% solution of coal-tar in ethanol. In view of its wide use in dermatological practice an experimental investigation of its carcinogenic properties was thought desirable. (This was suggested by Dr. J. R. Squire, of the M.R.C. Industrial Medicine Research Unit, Birmingham Accident Hospital, and by Dr. E. H. Capel, late medical officer to Joseph Lucas Ltd., Birmingham.)

Carcinogenicity Tests on Mouse's Skin

Twelve white mice were painted twice weekly for 41 weeks with undiluted liquor picis carbonis (*B.P.*) on a small area of skin in the interscapular region. Papillomas appeared in the treated areas of skin in seven out of the 12 mice after the following intervals (counted from the beginning of applications): 10, 17, 18½, 25, 25½, 26, and 40 weeks, respectively. Thus the 50% tumour yield was reached in 26 weeks, representing a carcinogenic potency (Berenblum, 1945a) of Grade VII. This potency is comparable to that of cholanthrene, and is higher than that of 1:2:5:6-dibenzanthracene.

Of the seven mice with tumours, four subsequently developed malignant growths, which were found histologically to be all squamous carcinomas with atypical growth and local invasion. There were no metastases.

Benzpyrene Content

Although 3:4-benzpyrene—the potent carcinogen originally isolated from tar (Cook, Hewett, and Hieger, 1933)—is not the only carcinogen present in tar (Berenblum and Schoental, 1947), the fact that it can be identified with ease by fluorescence spectrography (Hieger, 1930) and its concentration in complex mixtures readily estimated (Berenblum and Schoental, 1943) made it desirable to determine the benzpyrene content of liquor picis carbonis.

Using the method of estimation of Berenblum and Schoental (1943), the preparation was found to contain 0.02% of benzpyrene, thus representing a 0.1% concentration in the tar itself (since the pharmaceutical preparation in question is a 20% solution of tar in ethanol). This value of 0.1% is much lower than that found in many of the carcinogenic tars previously tested (Berenblum, 1945b). It would seem, therefore, that benzpyrene accounts for only a small part of the high carcinogenic potency of the preparation observed in the biological tests.

Discussion

The observation that liquor picis carbonis (*B.P.*) possesses a pronounced carcinogenic action on mouse's skin accords well with the earlier tests on tar-containing pharmaceutical preparations in use in dermatological practice on the Continent (Sternberg, 1923, etc.). This raises the important question whether its clinical use is not without danger to the patient.

The crux of the problem is no doubt the length of time the patient is exposed to such potentially carcinogenic action. It may well be that no significant danger is associated with its use in short-term treatments. On the other hand, in the case of chronic skin diseases of various types, for which applications of liquor picis carbonis are often continued for many years, the possibility of a late carcinogenic effect may be a real one. Probably the most serious hazard may arise from its continued use by the patient without medical supervision, to alleviate, for instance, some of the recurrent symptoms of occupational dermatitis in industry.

The true hazard, however, can be assessed only by a clinical follow-up of all patients submitted to this form of treatment. In the meantime, avoidance of *long-continued* application of liquor picis carbonis would be a wise precaution.

Summary

Liquor picis carbonis (*B.P.*), as used in dermatological practice, has been found to possess carcinogenic activity when painted on mouse's skin.

The clinical implications of this finding are discussed.

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Medical Memoranda

A Case of Bilateral Stress Fracture of First Rib

Mass radiography of the chest has called attention to various abnormalities which formerly were found only rarely. Among these is stress fracture of the first rib, usually attributed to the muscular pull of the scalenus anticus during strenuous and often unaccustomed physical exertion.

Roxby Alderson (1944) in 55,451 routine fluorographic examinations found 35 examples among naval personnel, the majority of whom had recently undergone energetic physical training. All but five were seen in males below the age of 25. The fractures were situated just proximal to the scalene tubercle. A notable feature was that only five of the 35 presented any significant history and symptoms—two had "sudden pain" in the shoulder shortly after strenuous physical training; two admitted direct trauma to the affected side of the chest some years previously, and the fifth had complained of a "sore shoulder" after carrying sacks of coal.

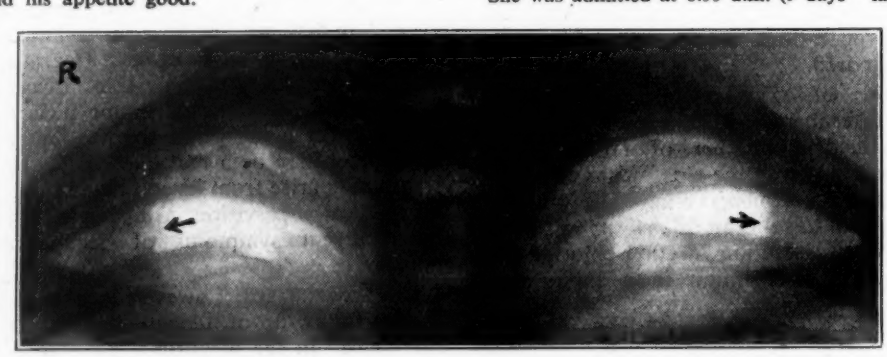
Among 3,000 routine chest radiographs Cohen (1943) found three isolated fractures of the first rib, all without referable symptoms. In one case there was a history of a blow on the chest three months before; in another no cause could be found; and in the third the lesion was attributed to the patient's occupation of carrying heavy boxes on the affected shoulder. Garber (1944) described a man of 54 who had sudden pain in the region of the right shoulder while lifting a heavy milk-container. Subsequent radiographs showed an isolated fracture of the first rib. In his search of the literature Garber found about 64 reported cases of isolated fracture of the first rib due to various causes, of which four were due to the muscular pull of the scalenus anticus.

The following case is of interest because of its presenting features and because the stress fracture was bilateral.

CASE HISTORY

A Palestine policeman, an Irishman aged 19, was admitted to a military hospital with a story of malaise for three days, with cough and sharp pain in the right upper chest. He had produced a small amount of greyish-green sputum. The pain was worse on taking a deep breath and on coughing. There had been no haemoptysis and no night sweats; his weight was steady at 140 lb. (63.5 kg.) and his appetite good.

Examination showed him to be well developed. The temperature was 101.5° F. (38.6° C.), pulse 84, and respirations 22. There was no finger clubbing. Movements were slightly reduced in the right upper chest. The percussion note was normal. Scattered moist rales and rhonchi were heard in both sides of the chest. No pleural friction sound was heard. The other systems of the body were normal to routine examination.



His condition was diagnosed as acute bronchitis and treated as such. After three days his temperature had fallen to normal and auscultation revealed only a few rales in the right chest. But he complained persistently of the sharp pain in the right upper chest and shoulder, worse on breathing and coughing. A radiograph of the chest revealed fractures of both first ribs, symmetrically situated on the two sides and passing through the scalene tubercles (see illustration). On the right the fracture ran transversely across the whole width of the first rib, with a rather jagged line that isolated a tiny island of bone in its middle portion. On the left the fracture extended from the scalene tubercle across about half the width of the rib and the line was smoother. There was no callus formation. It was found that the fractures were better demonstrated if a film was taken while the patient stretched his neck upwards, at the same time drawing the shoulders downwards by pulling on a fixed object.

Further direct questioning revealed that as a commercial traveller in civilian life he had indulged in very little physical exercise. He had joined the Palestine Police four weeks before admission and had undergone a course of physical training which included an hour of P.T. and a three-mile run every morning. Furthermore, he admitted noting pain and discomfort in the right upper chest three days *before* the onset of the cough. With the coughing the pain had become more severe and stabbing in nature. Pressure over both first ribs, especially the right, produced acute pain. No lesion of the brachial plexus was demonstrable.

Acknowledgments are due to the Director of Medical Services, M.E.L.F., for permission to publish this paper.

ROY ASTLEY, M.B., D.M.R.,
Captain, R.A.M.C.
A. BATTY SHAW, B.M., M.R.C.P.,
Captain, R.A.M.C.

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Ruptured Uterus

It is well known that spontaneous rupture of the uterus in labour occurs after previous caesarean section, and that the results to both mother and baby are serious—so serious that some say, "Once a caesarean always a caesarean." If it were usual for rupture to occur this would be the rule everywhere. Fortunately it does not always occur, and there is justification for some modification. If the operation has been for some permanent indication, or if the puerperium has been pyrexial, then a subsequent operation is advisable; if not, then admission to hospital is obligatory, but the case may be treated as a trial labour. Such a case is reported—for they are rare enough—to show how rupture can still occur and how insidious it can be.

CASE REPORT

The patient, a gravida-2 aged 27, was admitted to the Memorial Hospital, Woolwich, for her second confinement on Dec. 4, 1947. Thirteen months previously she had had a classical caesarean section on account of the extended breech presentation. The puerperium was reasonably satisfactory—a rise of temperature on the 8th, 9th, and 10th days could have been caused by mammary engorgement, and, indeed, probably was. The present pregnancy was quite uneventful. The presentation at her last visit was vertex, position R.O.P., and the head was not engaged.

She was admitted at 6.55 a.m. (9 days "late"). Uterine contractions were fair. At 4.30 p.m. contractions were occurring every five minutes. Foetal heart rate was 140. At 5 p.m. she complained of constant pain, the foetal heart was not heard, and the house-surgeon was notified. During the next two hours the pain persisted; the pulse remained stationary at 100 but became weaker.

When I saw the patient for the first time at 7.15 p.m. the condition was so striking as to make any other diagnosis impossible. She was white, the pulse was feeble and rapid, the abdomen was distended and tender, and the foetal heart was inaudible. Transfusion and immediate laparotomy were carried out. The abdomen was full of fluid blood; the child and most of the placenta were free and the uterus was gaping from fundus to cervix.

When the child and placenta were removed the uterus contracted, the abdomen was baled out, and the uterus was removed by subtotal hysterectomy, from which operation the patient recovered quite satisfactorily. The baby's heart was beating at birth but it ceased shortly afterwards.

COMMENT

There is little doubt that the rupture occurred two and half hours before the laparotomy. The bulk of the bleeding must have occurred then, for the abdomen was generally tender from the start and the pulse rate remained constant. The diagnosis of internal haemorrhage was there all the time (probable cause, ruptured uterus).

KEITH VARTAN, F.R.C.S.

Reviews

MODERN DERMATOLOGY

Modern Trends in Dermatology. Edited by R. M. B. MacKenna, M.A., M.D., F.R.C.P. (Pp. 432; illustrated. £2 2s.) London: Butterworth and Co. 1948.

The importance of dermatology as a branch of medicine has been increasingly recognized in recent years. Above all, the authorities responsible for public health have become aware of the large amount of sickness and disability and the tremendous waste of man-power caused both in peace and war by skin trouble, and perhaps for the first time in the history of the world corresponding efforts are being made to lessen its effects. These efforts are encouraged by the great advances in treatment provided by the modern chemists and physicists. At the same time those whose mission it is to work in experimental pharmacology and therapeutics appear to be grateful for the opportunities afforded by the easily accessible testing ground offered by the skin for proving, or perhaps disproving, their theories. Again, the vast complexity of the physiology of the skin has of late been increasingly understood. Besides mechanically protecting the underlying structures, it seems also to have the equally important function of providing humoral and chemical antibodies to the countless infections of all kinds. It does much in regulating salt metabolism and in regulating the body temperature, a subject still much more shrouded in mystery than it should be. Another facet of modern dermatology is the recognition of the intimate interdependence of the skin with the rest of the organism. Not only do changes in the skin reflect many general diseases, but severe skin affections also cause disturbances in metabolism. We must, however, make the reservation that the skin is so large an organ that much of it may be put out of action and yet enough remain to carry out its duties fairly efficiently. Of late years too, much has been made of the relation between morbid changes in the skin and the central nervous system, and a causal connexion between them has been eagerly sought. All these aspects of dermatology are considered in the volume before us.

Dr. MacKenna has brought together an excellent team of contributors, and the mere recital of their qualifications and the posts they hold demonstrates the interdependence of dermatology and every other department of clinical science. Plenty of problems about the skin remain for everyone to work at. The editor remarks that it is difficult to get young men to study problems of the commoner diseases such as psoriasis and seborrhoeic dermatitis, but when we read the work of Professor Stuart-Harris on the bacteriology of the skin and that of Stokes and Beerman on the dermatology of to-day and to-morrow we begin to see why they prefer contemplating the rarer dermatoses to studying the commoner but less exciting conditions which fill the out-patient departments. The complexities of the subjects which require investigation there are infinite, and it needs the highest scientific acumen to define the right question to ask even before one begins to devise the experiment to answer it. But already much is being done, and those who are interested in all aspects of dermatology will peruse this volume and be, in all probability, fascinated by it. For dermatologists it is nearly indispensable, but it is also to be recommended to other physicians who may not be always particularly sympathetic towards this specialty.

To some extent the relative importance attributed to a branch of medicine may be measured by the number of beds allotted to it, and judged by this criterion dermatology in the voluntary hospitals is indeed small beer. Its real claim to consideration in national hygiene may be better calculated by the provision made for treating skin diseases in the fighting Services. It is to be hoped that in the national hospital scheme now slowly coming into operation more justice will be done to it.

To review a book like this in the ordinary way is impossible, but there is one chapter the subject of which has a universal appeal and must be mentioned, and that is the psychological aspects of dermatology. Like other writers Dr. Wittkower has been unable to find any principle governing the relation between neuroses and dermatoses. To the reviewer it seems probable that in many cases skin disease, which always causes great distress of mind to the sufferer, may be the cause and not the consequence of neurosis.

H. HALDIN-DAVIS.

A DISTINGUISHED LIFE

My Life in General Practice. By H. W. Pooler. (Pp. 194; illustrated. 15s.) London: Christopher Johnson Publishers Ltd.

As the author of this book is an old friend of mine I should have declined to review it if I had not liked it so much, but my critical conscience gives me no qualms when I say that, after reading many books purporting to depict life in medical practice, I put it among the best. It presents the life story of a veteran general practitioner told with art and with gusto. The overriding impression left is that of a modest and happy man successful in his chosen sphere. His interests are wide—for example, he played a distinguished part on the Birmingham City Council, where he was prominent in the building up of its scheme of child welfare in which the city was a pioneer. His work in this sphere led to his being sent on several deputations to the Continent to see and report on what was being done there. His chapters on these visits reveal the author as an acute observer and a ready and interesting letter writer. Like many pioneers he suffered a rebuff at the hands of his constituents, who declined to re-elect him to the council. When he left Birmingham for general practice in Derbyshire, partly country, partly mining, he was a disappointed man. His incurable optimism (this diagnosis of his character is proved correct not only by his own words but by the whole book) soon made him as happy and as useful in his new career as he had been in the city.

Dr. Pooler entered his profession in "the hard way" as an apprentice to his uncle, to whom he pays generous tribute. As a dispenser assistant he earned his way through his college career at Queen's College, Birmingham, where he was a successful student, as he had been at school. After qualification he served in several house appointments. His reminiscences of his old teachers—Sir Walter Foster, Jordan Lloyd, Lawson Tait, Priestley Smith, and others—will be enjoyed, I hope, by many old Birmingham men. But the book should make a strong appeal to all, whether medical or lay, who like to read of the experiences of a man good at his work and devoted to it and always with an interest in the people around him. To members of the B.M.A. Dr. Pooler is well known for his long service to the Association as divisional secretary, representative, member of Council and of many committees. The vice-presidency conferred on him last year evidently gave him great pleasure, as it did his friends all over the country. The book contains many good illustrations; some of the best are contributed by a schoolboy grandson of the author and show great promise.

ALFRED COX.

PULMONARY TUBERCULOSIS

Die Lungentuberkulose beim Erwachsenen. Klinik und Therapie für die Praxis. By Dr. Hermann Weber. Second edition. (Pp. 417; illustrated. 75 Swiss francs.) Vienna: Verlag Wilhelm Maudrich. 1948.

This study of "Pulmonary Tuberculosis in the Adult" was originally conceived by Professor Wilhelm Neumann, but owing to his sudden death the work was undertaken by his pupil, Dr. Weber. It is intended primarily for those interested in diseases of the lungs, but the author rightly insists throughout on the necessity of co-ordinating this subject with general medicine. The book is divided into two sections, one on diagnosis, the other on treatment. In the former the author surveys the whole field of pulmonary tuberculosis, primary and post-primary. His views are orthodox, up to date, and by and large acceptable to British workers. He emphasizes the importance of a detailed clinical history and a complete systemic examination in diagnosis, but somewhat exaggerates the significance of physical signs and forces it to tally with the radiological picture. While he acknowledges the use of mass radiography, he pays scant attention to the clinically

silent asymptomatic lesion. He discusses pathological investigations in the greatest detail, and the lack of space devoted to chest radiology is therefore the more surprising; however, the book is copiously illustrated by radiographs of the chest. Something might have been said of the anatomy of the bronchial tree and the segmental distribution of the bronchi, which workers in this country have shown to be important in thoracic surgery.

The chapter on differential diagnosis is excellent. The author discusses non-tuberculous lung infiltrations and cavitating lesions such as "the pneumonias," lung abscess, bronchiectasis, cystic lung, the pneumomycoses, benign and malignant lung tumours, Hodgkin's disease, the leukaemias, Boeck's sarcoidosis, etc. The section on treatment covers present trends in relation to general management, sanatorium regime, and collapse therapy in all its forms in a balanced, orderly manner. The section on drug therapy is below standard, and there is no mention of streptomycin, for example. The space given to tuberculin therapy may be considered by many in this country to be out of proportion to its merits. On the other hand the author gives a balanced appraisal of prophylactic immunization against tuberculosis.

The book is of unusual interest because it probably represents the views of the post-war Viennese medical school on pulmonary tuberculosis. Its references are fairly complete, but curiously enough there is only one to British literature. One cannot help thinking that some of the chapters might have been better compressed, but the book is a careful study of a vast and significant subject.

PHILIP ELLMAN.

TRICHOMONIASIS

Trichomonas Vaginalis and Trichomoniasis. By Ray E. Trussell, M.D. With an introduction by E. D. Plass, M.D. (Pp. 277; illustrated. 30s.) Oxford: Blackwell Scientific Publications. 1947.

This account of trichomoniasis by R. E. Trussell is essentially a critical review of the literature together with an account of the author's observations. The book contains 277 pages, but some idea of the magnitude of the work involved in its compilation can be realized by the fact that there are no fewer than 1,586 references. In spite of this many of the main problems remain unsolved: how does *Trichomonas vaginalis* gain entry to the human body? Does it constitute a venereal infection? Why are females apparently infected so much more frequently than males? Is the organism a true pathogen? These and other questions are not yet answered, but a study of this work will be found most interesting, especially by all those who have to deal with women's diseases.

The organism is difficult to grow in pure culture and there is some evidence that its existence, or at any rate its power to flourish in the tissues, depends on the presence or absence of certain other organisms; there is a good deal of doubt about whether it forms cysts, and it appears to reproduce itself by division into two. It is difficult to inoculate human beings artificially, and no doubt the organism is often present in women in a "carrier" state. Diagnosis is best carried out with a wet specimen, which must be fresh and preferably kept warm; the author recommends various diluents, of which the best seems to be Ringer's solution.

The number of methods used in treatment by various workers is evidence that none is outstandingly effective; the subject occupies as many as 70 pages, and the author lists and discusses nearly 200 methods in alphabetical order from acetanilide to zinc sulphate. In general it is necessary first to cleanse the vagina, dry it as far as possible, and then apply the chosen remedy; jellies or creams are favoured as the best media. The object should be to restore the normal flora, and there is little doubt that the disease would be easy to cure if it were possible to adjust the *p*H of the vagina to the optimum. Insufflation is an effective method of applying a drug, but may be dangerous if force is used. Lactobacilli are well reported on by a number of observers. Many of these and other problems still remain unsolved, but the author is convinced that neither oral nor intestinal *Trichomonas* ever infects the vagina. A study of this volume will convey a large amount of information and provide much food for thought.

T. E. OSMOND.

BOOKS RECEIVED

[*Review is not precluded by notice here of books recently received*]

Mesmerism. By Dr. Mesmer. (Pp. 63. 6s.) London: MacDonald. 1948.

The first English translation of Mesmer's *Mémoire sur la Découverte du Magnétisme Animal.*

Vascular Diseases in Clinical Practice. By I. S. Wright, M.D. (Pp. 514. 41s.) Chicago: The Year Book Publishers. 1948.

A manual for general practitioners and senior students.

The Science of Athletics. By F. A. M. Webster. (Pp. 333. 15s.) London: Nicholas Kaye. 1948.

A scientific study of many branches of athletics.

The Principles of Physical Education. By J. F. Williams, M.D., Se.D. 5th ed. (Pp. 377. 17s. 6d.) London: W. B. Saunders 1948.

An account of the aims and methods of physical education.

Treatment of Heart Disease. By W. A. Brams, M.S., M.D. Ph.D. (Pp. 195. 17s. 6d.) London: W. B. Saunders. 1948.

A systematic guide for the general practitioner and medical student.

The "Peleus" Trial. War Crimes Series. Edited by J. Camerson, D.S.C., K.C. Vol. 1. (Pp. 247. 18s.) London: William Hodge. 1948.

An account of the trial of members of a U-boat crew.

Practice of Allergy. By W. T. Vaughan, M.D., and J. H. Black M.D. 2nd ed. (Pp. 1,132. $15.00.) St. Louis: C. V. Mosby. 1948.

The manifestations of allergy discussed from the clinical standpoint.

Troubles of Children and Parents. By S. Isaacs, C.B.E., D.Sc., M.A. (Pp. 238. 8s. 6d.) London: Methuen. 1948.

Answers to the questions parents ask about young children

Archives of Neurology and Psychiatry. Edited by A. J. Lewis and S. Nevin. Vol. 15. 1946. (30s.) London: Staples Press (for L.C.C.). 1947.

Articles reprinted from the journals of 1938–40.

Reticulosis and Reticulosarcomatosis. By P. van der Meer and J. Zeldenrust. (Pp. 83. 40 francs.) Leyden: Universitaire Pers Leiden. 1948.

An account of disorders of the reticulo-endothelial system characterized by cellular proliferation.

Aids to Embryology. By J. S. Baxter, M.A., M.Sc., M.D., F.R.C.S.I. 4th ed. (Pp. 181. 5s.) London: Baillière, Tindall and Cox. 1948.

The book has been largely rewritten to incorporate recent knowledge.

Fortschritte der Biochemie. By F. Haurowitz, M.D. (Pp. 364. 40 Swiss francs.) Basle: Karger. 1948.

An account of recent advances in biochemistry.

Lehrbuch der Augenheilkunde. By J. Babel *et al.* (Pp. 858. 85 Swiss francs.) Basle: Karger. 1948.

Textbook of ophthalmology, with many illustrations.

The Clinical Apprentice. By J. M. Naish, M.D., M.R.C.P., and J. Apley, M.D., M.R.C.P. (Pp. 200. 15s.) London: Simpkin Marshall. 1948.

A guide to the student starting clinical training.

The Royal Society Empire Scientific Conference Report. June-July, 1946. (Vol. 1, pp. 828; Vol. 2, pp. 707. 42s. for both vols.) London: Morrison and Gibb. 1948.

A report of the conference, with the papers read.

Psychology of Personality. By R. Stagner. 2nd ed. (Pp. 485. 30s.) London: McGraw-Hill. 1948.

The author discusses chiefly the normal personality and its development.

Aids to Ophthalmology. By P. McG. Moffatt, M.D., M.R.C.P., F.R.C.S., D.O.M.S. 10th ed. (Pp. 266. 6s. 6d.) London: Baillière, Tindall and Cox. 1948.

Includes new material on chemotherapy, and on the treatment of war injuries.

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WORLD MEDICAL ASSOCIATION

The second meeting of the General Assembly of the World Medical Association was held at Geneva from Sept. 5–7 under the presidency of Professor E. Marquis. The first meeting, held in Paris last year, of which an account was given in this *Journal*,[1] was enlivened by incidents that made some observers doubt whether this new international organization would reach maturity. All such doubts were removed by the conduct of the business of the second General Assembly. The World Medical Association during the past year has through its Council put its hand energetically to the tasks it has set itself. These were stated in the Articles of Association adopted at the meeting in Paris and now printed in a booklet entitled *The Constitution of the World Medical Association*. The first object of WMA is "to promote closer ties among the national medical organizations and among the doctors of the world by personal contact and all other means available." Another of the stated objects of WMA is the establishment of relations with the World Health Organization, Unesco, "and other appropriate bodies." WHO, which now has its permanent headquarters in Geneva, has been quick to respond, and the General Assembly listened with close interest to an address read to them by Dr. Calderone, who is in charge of the New York office of WHO. In his address, which appears elsewhere in this issue, Dr. Calderone said that "by the act of affiliating with the World Medical Association, WHO acknowledges the debt it owes to the medical practitioner." He stressed the identity at certain points of the aims of these two international organizations. The aim of both is, in the words of Object No. 5 of WMA, "to assist all peoples of the world to attain the highest possible level of health," and both organizations recognize that the achievement of this is a step towards the promotion of peace in the world. This again is a further example of the growing belief that contact between similar professional groups of different countries may do much to counteract the aggressive designs of politicians.

While medical men may hope that the millennium will be reached with the conquest of disease and the achievement of maximum health, they may temper their optimism by noting that wars have often been started by nations at the peak of their prosperity. As Dr. Calderone observes, Medicine has forgotten to measure the effects upon the social structure of the peoples of the world of the great achievements of medical science and public health during the past fifty years. He points out that if the world population continues to increase at its present rate there will in forty years' time be "another billion hungry bodies and souls over and above those it has to-day." If Medicine has forgotten to measure the effect of its achievements the creation of WHO and WMA does at least show its awareness of the problem. In the work of these two bodies, and of FAO, medical men have been foremost among professional groups in stepping across national frontiers. At Geneva this month doctors from India, Pakistan, China, Europe, South America, and, last but not least, from the U.S.A. overcame the limitations of space and language because they had at heart a common aim.

The President of this year's Assembly was to have been Dr. Stuchlik, of Czechoslovakia, and the meeting of the Assembly was to have been held in Prague. After the Communists seized power in Czechoslovakia the Council of WMA decided for obvious reasons that the meeting would have to be held elsewhere, but hoped that it would still be possible for Dr. Stuchlik to be President. But another effect of Communism in Czechoslovakia was the abolition of the Czechoslovak Medical Association. This arbitrary act of elimination made it impossible for Dr. Stuchlik to be President, although fortunately he was able to be present at the meeting. It is perhaps unnecessary to state that the U.S.S.R. has not joined the WMA, although it is a member State of WHO; nor has the U.S.S.R. joined Unesco or FAO.

The General Assembly had before it a document on German medical war crimes, and it was this undoubtedly that prompted it to draft for submission to its member organizations a pledge taking its inspiration from the Hippocratic Oath. This can be ridiculed, and has been by the *Manchester Guardian*, as an attempt to subedit this famous medical code. But those who indulge in the tempting and facile game of ridicule might reflect that most national groups would to-day feel disinclined to pay homage to Apollo, and the injunction in the Oath against cutting for the stone would evoke in the mind of the modern doctor merely amused bewilderment. Probably very few medical men know the Hippocratic Oath, and it is rare to find it recorded in histories of medicine; Garrison, for example, refers to it, but does not reproduce it in what is the most authoritative standard work on medical history. We therefore print the pagan version elsewhere in this issue. It is, perhaps, misleading to describe the pledge which has been drafted as a modern version of the ancient Oath. In these days of shifting values a cogent case can be made for drawing up in short and simple terms an ethical code to which medical men and women in any part of the world could respond. If the WMA can succeed in doing this, and if adoption of the pledge could be made part of the ceremony of qualification, it might have the force possessed by the ancient Oath, now merely a curiosity of medical history. The WMA, however, might be well advised to have second and third thoughts on the content of this modern pledge, and if agreement is reached on this by the various member associations great care should be taken in phrasing the different translations. The English translation of the French version that was submitted to the Assembly was not without imperfection.

Another matter that engrossed the attention of the WMA Assembly was social security and its bearing upon medical practice. The Assembly adopted the recommendation of the Council that information on the position

[1] *British Medical Journal*, 1947, **2**, 498.

of social security in each country should be obtained by means of a questionary, that on the basis of this an outline should be made of the "status" of social security in each country, and that the Secretary-General of the WMA should be kept informed of proposed or actual changes in the social security laws of the countries represented in WMA. The Assembly also adopted the recommendation that a permanent committee on social security should be set up. The meeting had before it a number of principles which might be adopted by those countries in which medical care was part of the social security scheme. Of these principles only three were recognized by the U.S.A. delegates as generally applicable to the practice of medicine—namely, freedom of choice of physician by the patient and freedom of the patient to change his physician; no intervention of any third party between physician and patient; all medical services to be controlled by physicians. What came out of the discussion on this theme was a general apprehension of State intervention in medicine, opposition to a full-salaried service, and doubt whether medical care should be made available free of charge to those who could afford to make a direct payment for it. In addition to setting up a committee on social security it was also decided to set up committees on medical care, ethics, publications, and postgraduate education. These committees will prepare statements to submit to the meeting of the Council of the WMA in Madrid in April next year, which will be followed by the General Assembly in London in the autumn.

It is possible here to make reference to only some of the work of the WMA, but the document presented to the Assembly showed that the Council, through the able guidance of its Chairman, Dr. T. C. Routley, and the hard work of the Secretary-General, Dr. Louis H. Bauer, had made it possible for the General Assembly to conduct its affairs with efficiency and harmony. It is a commonplace to state that one of the most valuable features of an international gathering lies in the fact that men from different parts of the world can get to know each other. This was indeed true of the meeting at Geneva, and the WMA was much indebted to the abounding hospitality of its Swiss hosts, the Fédération des Médecins Suisses and the Medical Association of the Canton of Geneva, and to the indefatigable efforts of WMA's treasurer, Dr. Leuch, of Zurich. The WMA is now firmly established on the basis of a sound constitution and efficient administration. It will soon have that necessary outward and visible sign of its existence, a journal, to be edited by Dr. Morris Fishbein, the Editor of the *Journal of the American Medical Association.*

MEDICINE IN THE COMMONWEALTH

A number of medical men from all parts of the British Commonwealth met last week at B.M.A. House at a conference presided over by Sir Lionel Whitby. Most of them had attended the General Assembly of WMA at Geneva during the previous week and were eager to follow the example of the larger organization in fostering personal and professional relationships and in meeting to discuss common problems. The proposed British Commonwealth Medical Conference is in no sense an offshoot of WMA, and certainly does not represent an attempt to form a bloc within the world organization. The Dominions either have branches of the B.M.A., or form national medical associations affiliated with it. There is, therefore, this obvious common link between medical men and women in the Commonwealth. Medical men and women in the Dominions have drawn their inspiration from Britain and often return to what they call "home" for postgraduate education and distinctions. They speak a common tongue, and those present at last week's meeting listened with admiration to the fluent and idiomatic use of it made by doctors from India and Pakistan. All these natural bonds hold strongly together those medical men who work in countries belonging as equal partners to the British Commonwealth of Nations. But until now there has been little attempt to foster a spirit that already exists, or to integrate in corporate form the separate units of medical organization in the Dominions. The fact that it is being done now is yet another sign that men and women wish through common association and common aims to stem the forces of disintegration so painfully manifest in a world which modern transport has reduced to the size of a parish.

For two days means of promoting closer contact between doctors of the Commonwealth were discussed by representatives of the national medical associations of Australia, Canada, Ceylon, Eire, Great Britain, India, New Zealand, Pakistan, South Africa, and Southern Rhodesia. To effect this it is proposed to hold an annual conference of representatives of national medical associations or units in conjunction, when possible, with the annual meeting of the association of the host country. The conference, it is suggested, should last three days, and to it each country should send two representatives. The secretary of the host association is to act as the secretary of the conference. If the various Commonwealth medical associations decide to support the project the first meeting will be held in Saskatoon, Canada, in June, 1949, to be presided over by Dr. J. F. C. Anderson, the President-Elect of the Canadian Medical Association. In 1950 it is hoped that the conference will be held in Brisbane, Australia, and in 1951 in South Africa.

RELIEF OF PELVIC PAIN

The object of nerve resection and nerve block for gynaecological disorders is nearly always to relieve pain, and in recent articles in this *Journal* J. P. Greenhill[1] and Meave Kenny[2] have emphasized the value of these operations in the treatment of inoperable carcinoma. Mr. Albert Davis in a paper published elsewhere in this issue now reviews the whole problem, describing the indications, technique, and results of the various operations which have been and still are used to ease the pain of malignant and other conditions. He points out that there have been wide differences of opinion about the value of certain procedures, but that the time is now ripe for an impartial assessment of the results reported both by the enthusiasts for this type of treatment and by those disappointed with the results. Unfortunately the groups of cases treated by sympathectomy, even of common conditions like dysmenorrhoea, are

[1] *British Medical Journal*, 1947, **2**, 859.
[2] Ibid., 1947, **2**, 862.
[3] *Amer. J. Obstet. Gynec.*, 1947, **53**, 541.
[4] Ibid., 1948, **55**, 151.

small. Moreover, it seems likely that in this as in most things there is a natural tendency to publish good results rather than poor ones, and it is certainly more common to meet verbal than written expressions of disappointment among practising gynaecologists. There seems to be least dispute about the value of intrathecal alcohol injections for hopeless cases of pelvic cancer, though even here the method has the disadvantage that it sometimes leads to urinary and faecal incontinence. Presacral neurectomy is of limited value in this type of case, if only because cancer which is beyond hope of cure is usually causing somatic as well as visceral pain. Moreover, it is open to question whether it is really desirable to carry out an abdominal operation of this kind on a patient who has only a few weeks or months to live. To avoid this difficult decision Greenhill suggested that pelvic sympathectomy should be carried out as a precautionary measure at the initial laparotomy when the findings indicate that the disease is likely to recur and to cause pain at a later date. This can be applied to innocent conditions like endometriosis as well as to cancer.

Perhaps the most difficult problem is to decide the place of presacral neurectomy in spasmodic dysmenorrhoea and of ovarian sympathectomy in painful conditions of the ovary. In the latter connexion Davis mentions that the whole infundibulo-pelvic ligament, including the ovarian vessels, must be cut if all the autonomic nerves are to be divided. This may well affect ovarian function adversely and should not therefore be lightly undertaken in young women. Again, although the ovary is undoubtedly sometimes the site of origin of pain, probably the majority of cases of "ovarian pain" are wrongly labelled. So it is not at all uncommon to see young women who have had not only the ovarian autonomic nerves divided but the whole appendage removed still suffering from the pain which prompted the operation. In his assessment of the value of the presacral neurectomy for dysmenorrhoea Davis reviews the literature and relates his own experience of 86 cases during a period of 16 years, an experience which is probably unrivalled in this country. He claims good results in 54% of his earlier cases, 71% in the later ones, and even better figures for the most recent group. Nervous factors play such a large part in dysmenorrhoea that it is difficult to assess the results of any form of treatment, and it is generally reckoned that all the common procedures—physical exercises, hormones, drugs, dilatation of the cervix, psychotherapy, etc.—give about a 60% cure rate. It would be unfair, however, to compare this with Davis's figures, because his cases were selected and he was dealing only with those in which all other methods of treatment had been tried and failed. The rationale of presacral neurectomy for spasmodic dysmenorrhoea also remains open to question. Is it effective because it severs pain-conducting fibres or because it interrupts motor pathways? Davis takes the view that both mechanisms operate. Nevertheless it is clearly established that the operation does not result in quiescence of uterine muscle; labour following the operation proceeds smoothly and normally as a rule. Nor for that matter is subsequent labour painless, or at any rate not unusually so. Some have suggested that the pain of spasmodic dysmenorrhoea is essentially due to muscle ischaemia (secondary to spasm), so it may be that presacral neurectomy is beneficial in that it improves the blood supply of the uterus. A popular explanation of dysmenorrhoea is to suppose a zone of spasm or increased resistance in the lower segment and cervix, under the influence of adrenergic fibres of the presacral nerve, which is opposed to the detrusor muscle of the upper uterus. This view may not be correct, or at least may require some modification, for Danforth[3] and Schwarz and Woolf[4] have recently demonstrated that the cervix does not normally contain much muscle tissue, being essentially fibrous in structure. If it is correct, however, then the cases in which presacral neurectomy should give the best results are those which respond well to simple procedures such as dilatation of the cervix and alcohol injection of the pelvic plexus.

The crux of the problem, then, is the selection of cases of dysmenorrhoea suitable for presacral neurectomy. Davis states, and in doing so probably reflects the general opinion among gynaecologists, that the operation should only be considered when the dysmenorrhoea is of the spasmodic type and when all other forms of treatment (including dilatation of the cervix) have failed. This group of course includes those unsatisfactory patients whose symptoms are essentially psychogenic and whose pain threshold is low. Unless these too are excluded the over-all results for any series of cases are likely to be poor. Unfortunately it is these women who are the most persistent in their demand for "something to be done" and who are most ready to agree to an abdominal operation. It is not always easy to exclude these, and a failure to do so may explain why so many gynaecologists are not very impressed with the value of presacral neurectomy. Certainly a rigid selection of this kind followed by a further elimination of those women who refuse the operation means that any one gynaecologist has a comparatively limited experience of the procedure.

OBSTETRIC ANALGESIA

Pethidine was originally described by German workers as a synthetic substitute for atropine, but in practice it was soon found to possess analgesic in addition to spasmolytic properties. This combination was obviously likely to prove of value for the relief of pain in labour, and it was not long before the drug was being widely used for this purpose. Its safety and ease of administration have been described by many writers, but it has two disadvantages: its action as an analgesic is apt to be uncertain, the relief given by pethidine alone varying considerably from patient to patient, and it has very little effect in inducing amnesia. For these reasons the combination of pethidine with scopolamine has been suggested as a method of improving both the analgesic and amnesic effects. In 1944 Schumann[1] reported favourably on the use of this combination in 1,000 labours, and Dr. Hilda Roberts in a paper published elsewhere in this issue (p. 590) records her experience with this method in 500 cases.

The initial dose in her series consisted of 100 mg. of pethidine and 1/150 gr. (0.44 mg.) of scopolamine. This was repeated after one hour, unless the os was more than three-quarters dilated, in which case pethidine alone was repeated. A total of 200 mg. of pethidine and 1/150 gr. of scopolamine sufficed for the majority of labours, though as much as 500 mg. of pethidine and 1/50 gr. (1.3 mg.) of scopolamine was given to some mothers without apparent ill-effect. Intramuscular administration was preferred, though pethidine was sometimes given intravenously slowly and in dilute solution if labour was well advanced before treatment was begun. The degree of relief obtained was very satisfactory and much better than that given by pethidine alone. Co-operation in labour was on the whole good, though scopolamine caused excitement in a few mothers. For this reason close observation of patients who have received pethidine and scopolamine is obviously essential. The aim was not to produce the full amnesia of twilight sleep but to permit the mother to remember the major part of her labour without any

[1] *Amer. J. Obstet. Gynec.*, 1944, **47**, 93.
[2] Ibid., 1945, **50**, 542.

memory of suffering. No foetal deaths or foetal morbidity could be attributed to the method, though a few of the babies were quiet at birth or slow to breathe, a state sometimes observed when pethidine is used alone. Recovery was always rapid and complete. It was not possible to come to any definite conclusion about the effect of pethidine and scopolamine on the duration of labour, though there is a suggestion that it may actually be shortened. A special study would be necessary to clear up this point. Investigation of uterine contractions by means of an abdominal tocograph showed no changes in their rhythm or amplitude. A slight but transient rise of blood pressure was observed after injection of pethidine and scopolamine, but no depression of maternal respiration could be demonstrated with the dosage used.

The results reported by Dr. Roberts are remarkably good, and the method is likely to have a wide appeal, though the need for careful supervision must be stressed in view of the occasional case in which scopolamine leads to excitement. Another possible complication is oedema of the uvula. Steinberg,[2] in a series of 400 labours in which pethidine and scopolamine had been used, observed this condition in three patients, one of them having oedema of the glottis as well. All three showed cutaneous sensitivity to scopolamine, as did a fourth patient in whom oedema of the uvula occurred after the administration of "seconal" and scopolamine. This is probably an uncommon happening and does not appear to have been encountered in the large series of cases receiving pethidine and scopolamine in the obstetric department of the Postgraduate Medical School. Nevertheless it remains a possible complication of the use of scopolamine, and one which should be borne in mind by all who make use of this valuable drug.

CARCINOGENIC ACTION OF LIQUOR PICIS CARBONIS

The discovery of the carcinogenic action of coal tar on the skin of rabbits and mice was of great consequence in experimental cancer research. Many other carcinogenic agents are now known, but coal tar remains one of the most potent. Twenty to thirty years ago several investigators reported that therapeutic preparations of coal tar in use on the Continent produced cancer of the skin of mice. In a paper published elsewhere in this issue Dr. I. Berenblum shows that the same is true of liquor picis carbonis (B.P.). When applied twice weekly it gave rise to papillomata or carcinomata of the skin in half the mice within six months; this represents a moderately high carcinogenic potency.

The presumption that liquor picis carbonis may lead to cancer of the human skin is justified by the observed similarities between occupational skin tumours of man and artificially induced skin tumours of mice. The occupational tumours are attributable to substances which cause cancer when applied to the skin of mice. Following repeated applications of the carcinogenic agent tumours begin to grow after a latent period which depends on the potency of the agent and the frequency of its application. They may first appear long after the applications are stopped; in general the higher the proportion of animals which develop tumours the earlier the onset. Similarly in occupational cancer long exposure to the harmful material precedes recognizable tumour formation, which may be deferred until many years after exposure has ceased. The outstanding difference is in the speed of the carcinogenic process. Carcinogenic agents of high or moderate potency cause skin cancer in laboratory mice, whose life-span is two to three years, within a few weeks or a few months; in man the same thing happens only after many years. Latent periods of up to 30 years are recorded for occupational tumours of man, and the proportion of exposed individuals developing cancer is usually low.

It is reasonable to conclude that liquor picis carbonis would induce skin cancer in a proportion of human beings provided the exposure was of sufficient intensity and duration. In short courses of treatment the cancer-inducing properties may be ignored. It may be prudent, as Dr. Berenblum suggests, to avoid long-continued application for chronic skin diseases pending a more exact appraisal of the risk by observation of patients who have received prolonged treatment. The follow-up of patients should take account of the expectation that cancer will develop only after prolonged applications, possibly many years after the applications have stopped, and in only a small proportion of the patients, and also of a possible difficulty in apportioning blame for a tumour between the therapeutic agent and the lesion to which it was applied.

STELLATE BLOCK IN PULMONARY EMBOLISM

New indications are still being found for blocking the sympathetic chain with a local analgesic. One of them is the injection of the stellate ganglion in cases of severe pulmonary embolism. Bageant and Rapee[1] describe two cases in which this injection was followed immediately by a profound relief of pain and apprehension and a lessening of cyanosis and shock. The explanation of this favourable result remains obscure, but it can be compared with the relief of pain and improvement in the peripheral circulation which follow sympathetic interruption in cases of blockage of the main arteries in the limbs. Small lesions of the limb vessels, particularly thrombi, frequently cause a widespread increase in local vasomotor tone, the abolition of which may be the reason for the relief given by paravertebral block of the sympathetic chain. It is likely that a similar mechanism operates in the arteries of the lungs, and that occlusion of branches of the main artery is accompanied by a vasoconstriction which increases the burden on the right ventricle and interferes with the flow of blood to the left side of the heart, thus producing a circulatory embarrassment out of proportion to the size of the arterial block. The pain of pulmonary embolism may be due to ischaemia in the affected area or, if the hypothesis recently advanced by Wyburn-Mason[2] is correct, to stimulation of vasodilator nerves. Whatever the mechanism, it would appear from Bageant and Rapee's report that a great improvement in the patient's condition, and probably also in the chances of recovery, can be obtained by infiltration of the region of the stellate ganglion with a local analgesic. The authors recommend that the procedure should be carried out at the earliest possible moment in cases which do not prove immediately fatal, the injections being repeated if the symptoms return or if further emboli develop.

DISTRIBUTION OF CIRCULATING BLOOD

Accurate knowledge of the minute volume of circulation has been acquired by different methods during the last decade. It is now known that the cardiac output in recumbent man averages between 5 and 6 litres per minute at rest. Several experimental methods have been used to show that about 1.2 litres of blood flows through the

[1] *Anesthesiology*, 1947, 8, 500.
[2] *British Medical Journal*, 1948, 1, 972.

kidneys every minute, and 1.5 litres through the hepatic veins.[1] According to Barcroft and Edholm[2] about 900 ml. per minute flows through the skeletal muscles, and the recent ingenious studies of Kety and Schmidt[3] show that the blood flow through the brain is also just under 1 litre per minute. The blood flow through the bones is probably very small; Edholm, Howarth, and McMichael[4] suggest an approximate figure of 100 ml. per minute. This adds up to 4.6 litres per minute, leaving the very variable skin blood flow to be accounted for, together with the flow through the endocrine glands.

A closely allied problem is the determination of the volume of blood present at any one moment in the various organs of the body. Weiss and Blumgart[5] calculated that the volume of blood in the lung vessels in man was about three quarters of a litre. This calculation was based on the finding that the mean circulation time through the lungs from the right heart to the left was about 10 seconds. If the volume of blood flowing through the lungs in a minute—i.e., the cardiac output—was 5 litres, then the volume of blood in the lungs at any one moment was clearly 10/60 of 5 litres, or 833 ml. A considerably lower figure of 60 ml. of blood exposed to air in the alveoli has more recently been calculated by Roughton,[6] using an entirely different method.

Nylin[7] has recently used red blood corpuscles labelled with radioactive phosphorus to estimate the total circulating blood volume. He took the opportunity during removal of the lung for cancer to estimate the blood volume while the lung vessels were clamped at the root. After allowing several minutes for mixing and sampling he released the clamps and new blood samples were again taken. From the resulting dilution of the circulating blood an estimate of the volume of blood in the occluded lung could be made. In three cases the volume of blood in one lung was estimated to be 14–20% of the total circulating blood volume. In a similar manner the volume of blood in the legs was calculated after the release of occluding cuffs round the thighs and found to be 13.6% of the total circulating blood volume. If Nylin's figures are correct, one third of the circulating blood volume (1½–2 litres) would be present in the two lungs—which would appear to be an excessive quantity. It seems doubtful whether the ingenious method contrived by Nylin was really capable of giving a completely accurate answer.

The circulation during pregnancy and in the puerperium is a special problem. It has often been suggested that the placenta acts like a large arteriovenous fistula. The early part of the puerperium is a particularly dangerous period for the mother with heart disease. Brown and her colleagues[8] have attempted to estimate the load imposed on the heart by labour and to study the changes in the circulation following birth. Deductions were by no means easy to make, owing to the variable strains during labour and to the use of pituitrin and ergot afterwards. Blood-volume estimations by the dye method proved to be difficult, and unsatisfactory samples were frequent. It was found that the venous pressure rose significantly during the first 24 hours after delivery, and this was observed particularly in patients who had received ergot. After the initial blood loss during labour the blood volume appeared to increase again on the second day of the puerperium, and only returned to normal following a post-partum diuresis. The authors think that their observations support the idea that the placenta acts like a large arteriovenous shunt. In a recent study of arteriovenous aneurysms Cohen and his colleagues[9] have shown that the sudden closure of an arteriovenous fistula does not lead to any great immediate relief of strain on the circulation, and its restoration to normal may take many weeks.

[1] Bradley, S. E., Ingelfinger, F. J., Bradley, G. P., and Curry, J. J., *J. clin. Invest.*, 1945, **24**, 890.
[2] *J. Physiol*, 1946, **104**, 366.
[3] *Amer. J. Physiol.*, 1945, **143**, 53.
[4] *Clin. Sci.*, 1945, **5**, 249.
[5] *J. clin. Invest.*, 1928, **6**, 103.
[6] *Amer. J. Physiol.*, 1945, **143**, 621.
[7] *Amer. Heart J.*, 1947, **34**, 174.
[8] Ibid., 1947, **34**, 311.
[9] *Clin. Sci.*, 1948, **7**, 35.

LEAD POISONING IN CHILDREN

Epidemics of lead poisoning among children have been reported from time to time. Such an epidemic in Australia was traced to the ingestion and inhalation of lead dust from painted verandas, and in Japan to the absorption by infants of toxic amounts of lead from the cosmetics and face powder used by their mothers. More recently the use of disused storage battery casings as fuel in poor homes in the U.S.A. has caused lead poisoning, and a number of cases in children have been reported from Baltimore[1] and New Orleans.[2]

Children are more susceptible and react more quickly and to smaller doses of lead than adults. The symptoms and signs may also differ in that the most dangerous manifestation of plumbism, meningo-encephalitis, is more frequent than the peripheral neuritis and lead palsy of adults. Children tend to develop a black deposit of lead sulphide on the teeth; this is not identical with the "blue line" seen on the gums in adult lead poisoning. Furthermore, the most rapid and reliable method of diagnosis in children—radiographic examination of the bones—is not applicable to adults, because lead is deposited in radiographically demonstrable amounts only in actively calcifying bone. The characteristic abnormality seen in the bones of children suffering from lead poisoning consists of zones of increased density where growth is most active—the ends of the long bones, the anterior ends of the ribs, and the ileal crests. The dense areas vary in width up to about 0.5 cm., and the width and density are in proportion to the duration and degree of exposure to lead. With increasing growth of the bones the areas become broader and less dense, and the rapid release of lead into the blood stream following cessation of exposure or acidosis resulting from an infection may be followed by renewed lead absorption, producing double zones of density. Zones of metaphysial density may be produced by other conditions such as vitamin deficiency, congenital syphilis, treatment of the mother during pregnancy with bismuth, and administration of phosphorus for rickets, but none of these is likely to be confused with lead poisoning.

The epidemic in Baltimore was caused by inhalation of volatilized lead. Nineteen children were examined, their ages ranging from 3 months to 20 years, and in fifteen there were abnormal metaphysial densities on radiographic examination. In general, the younger the child the more obvious were the skeletal deposits, but strangely enough the density of the shadows was not closely related to the appearance of toxic symptoms, especially gastro-intestinal disturbances. The children with the most marked radiographic abnormalities had no history of toxic illness, while those with slighter bone changes had definite symptoms. There was, however, a close correlation between the intensity of the black deposit on the teeth and the radiographic findings. These deposits appear to be almost as good a diagnostic sign as the areas of density in the metaphyses.

[1] Cooper, G., *Amer. J. Roentgenol.*, 1947, **58**, 129.
[2] Spizer, D., *N. Orleans med. Surg. J.*, 1947, **100**, 278.

WHO AND WMA

SOME POINTS IN COMMON

BY

FRANK A. CALDERONE, M.D.

Director of the New York Office, WHO

We print below a slightly shortened version of an address given by Dr. Calderone to the General Assembly of the World Medical Association on Sept. 9.

Just a few days ago, on Sept. 1, the World Health Organization finally emerged from the embryonic form it has had for two years as an Interim Commission. One of the first acts of this new and potentially important health organization is to welcome the World Medical Association and to establish formal relations with this other potentially important health agency.

Public health stems directly from famous practitioners of medicine not only from this generation but from generations past. There come to mind, for instance, such names as Bernardino Ramazzini, of Italy, who as far back as the seventeenth century wrote a treatise on professional hygiene; Johann Peter Franck, of Austria, who was responsible for the introduction in the eighteenth century of State legislation dealing with hygiene; Edward Jenner; Germany's Max von Pettenkofer and his fight against infectious diseases in the nineteenth century; the Frenchman Hyacinthe Vincent and the prophylaxis of typhoid fever; and, of course, Carlos Chagas, of Brazil, and his work on trypanosomiasis; Simon Flexner, one of the pioneer public-health practising physicians of the United States; and the Russian Haffkine, whose work on cholera we all know. These were the actual beginnings of public health. It seems strange that at times medicine has been compelled to remind public health of this very important fact.

By the act of affiliating with the World Medical Association WHO acknowledges the debt it owes to the medical practitioner. The 54 health administrators who attended the Health Assembly here just two months ago were well aware of this debt and directed us specifically to co-operate with the professional medical organizations. It is not surprising that the aims of these two organizations are identical, since it is the nature of the medical man that, given certain data, he will draw certain conclusions. Let us look at both constitutions. Both stress that their aim is to attain the highest possible level of health. The areas of responsibility and action which they delineate comprehend research, problems of standardization, medical education, and the dissemination of health information. In addition, of course, WHO has statutory obligations for international activities such as its epidemiological information and statistical services, and the administration of international quarantine regulations and the like. The two organizations come together again at one important point: they are both aware that the health of all peoples is fundamental to the attainment of peace and security. The similarity of purpose between the two organizations—one intergovernmental, the other purely professional—was emphasized when the Rt. Hon. Aneurin Bevan stated that "the World Health Organization and the World Medical Association are complementary," and the chairman of your Council, Dr. Routley, stated "that without the medical profession the World Health Organization is like an electric grid without current." There can be no question that both organizations must work as a team towards the attainment of the objectives to which they have subscribed.

A Reversible Equation

What is the main problem we all face together? As you must have recognized, it is the one of peace, and is interwoven with the complete social fabric of man. By this I mean not only man's natural environment but the environment he has created for himself. Thus, the problem includes housing, rural and tropical hygiene, education, freedom from want. One of the most vital of its aspects is proper nutrition and adequate food production for two billions of people who persist in increasing their numbers at a rate of 25 million yearly. We must remember that the total population in the last 300 years has seen a fivefold increase; in the last 100 years alone it has increased twofold.

We take it for granted that the earth can support this increasing population. So far it apparently has. But we must remember that this favourable balance which we have struck momentarily is a reversible equation; that where health is deficient men can produce less food, so that the cycle begins to reverse itself. Even in the richest countries of the world we are again approaching equilibrium in the matter of nutrition because of population pressure; perhaps, even, the scale has tipped against us. If that is the case, the trend is toward physical degeneration of the less-favoured population groups, with consequent mental and emotional instability; this in turn expresses itself in the tensions which lead to wars.

Here, then, is one aspect of the general problem I have described to you: the direct relationship between total health and the social mechanism which, in this instance, governs the production and distribution of food. This problem will not be solved by what we do this year or next year, but by the plan of operations which we make in the next five, ten, twenty, forty years, because in forty years, if this present rate of population increase continues, the world will have another billion hungry bodies and souls over and above those it has to-day. In any long-range plan total medicine must begin to play its part. The medical man must extend his already broad horizons; he must work as a member of a team of experts who in unison are pooling all their resources to make man's life possible and good. Such a team must consist of doctors, public health administrators, sanitary engineers, food specialists, agriculturists, forestry experts, economists, bankers. An important place in such a team should be reserved for the leaders of the professional societies, who up to now have tended to isolate themselves in their specialized fields. In the past 50 years medicine has gloried in the accomplishments in the field of science and public health. It has been so proud of these accomplishments that it has forgotten to measure their effects on the social structure of the peoples of the world. It reminds me of the exploitation of forests during the past fifty to a hundred years which has created vast and profitable industries but has led finally to critical erosions of land so that great areas in many parts of the world are now nothing but exposed rock or deserts, incapable of feeding people. The very fat of the land has been washed into the sea.

Interdependence of Medicine

The World Health Organization has recognized the interdependence of medicine with other sciences, social, economic, and political. It has close relations with FAO, with Unesco, ILO, the Economic and Social Council, and the Trusteeship Council of the United Nations. It has formal relationships with non-governmental agencies such as yours: for example, the International Council of Nurses, the International Dental Federation, the League of Red Cross Societies, the Inter-American Association of Sanitary Engineering. It is my belief that the World Medical Association should develop, in addition to its relations with the World Health Organization and Unesco, similar relations with many of the other bodies I have mentioned, especially FAO. Let us examine for the moment the practical applications of this concept of team-work by experts. Once again I shall take as an example the urgent problem of food. It is quite evident that we can increase production both by developing new lands which are not now being utilized for the production of food and also by releasing for productive use human energy that is now being expended in keeping alive disease-ridden bodies.

The first task is that for the sanitary engineer and the public health man, in conjunction with the agricultural experts, who can open up new areas now infested with malaria, yellow fever, sleeping-sickness, kala-azar, and schistosomiasis. Let me give you a few figures. There are to-day 300 million cases of malaria in the world. In Egypt alone, out of a population of 20 million, 13 million are suffering from schistosomiasis. In one belt in China, of an area of 40 miles wide and 200 to 300 miles long, 40 million people are suffering from kala-azar. Whole regions of South Africa are uninhabitable because of trypanosomiasis. It is not too simple to state that in order to open up huge areas for food production we must get rid of these infections. Leaving aside the problems of disease control which such a project would encounter, we must consider the danger to the land itself. These regions which to-day are unproductive because the

breed disease may be the very areas which protect whole drainage basins against erosion. By stripping these lands of their forests in order to put them into agricultural use we may encourage erosion such as is now washing the friable soils of South America, Africa, and parts of South-East Asia into the sea.

A second task is to take care of people who must now expend perhaps 80 to 85% of their physical energy in combating the parasites which infest their bodies. They are capable at best of using only some 15% of their strength in working the soil to grow food. This extreme example serves to emphasize the positive function of medicine, which is to ensure that men and women will be born healthy and will remain productive as long as possible.

The whole task, as I see it, falls into three natural divisions. In one group of medical problems governmental action has offered the most practical solution. This is true in making use of modern methods which are now available to combat malaria, yellow fever, kala-azar, water-borne diseases, sleeping-sickness, schistosomiasis, brucellosis, industrial hazards and accidents. Here is where the engineer and the public health administrator, following precepts given to them by the medical profession, can get rid of these hazards to life.

A second group requires close co-operation between the medical profession and the Government health agencies. This includes diseases such as tuberculosis, syphilis, gonorrhoea, yaws, smallpox, diphtheria. It is evident here that public health organizations can aid the doctor by educating the public to co-operate in both prevention and active treatment of these diseases.

And finally there is a group in which facilities for diagnosis, hospitalization, and the like are of great importance to the doctor. Where these facilities are supplied by governmental or other sources they enable him better to apply his skills in the fields of paediatrics, obstetrics, internal medicine, surgery, metabolic disorders, developmental disorders, degenerative diseases, and psychiatry. Clearly, the co-operation suggested by this broad outline will take time to develop, yet we must begin action without delay. Moreover, there are specific points on which we can act immediately. For instance, probably one of the most important objectives for both the World Medical Association and WHO is the proper use of nomenclature in the morbidity and mortality statistics that have been published the world over. It is only with proper nomenclature that it will be possible to arrive at any conclusions about the efficacy of health measures which we are using. By the same token it is important that you help us, as both constitutions foresee, in the standardization of drugs and biologicals, as well as the revision of pharmacopoeias. It is essential that standards of pathological and bacteriological diagnosis be uniform all over the world, that the sedimentation rate mean the same thing in New York, Geneva, Bombay, and Shanghai; that a blood group, as well as the nomenclature that describes it, have the same meaning for doctors all over the world. Finally, we must work together in medical education.

In what I say now I am putting forward my personal, not official, views for consideration. Certain favoured areas have enough physicians, but in many parts of the world it is common to find one doctor to 20,000, 40,000, or even 100,000 people. In planning standards of education we must have in mind those areas where there is a dearth of doctors. Let us remember, in making our plans, that scarcely forty years ago in New York medical practitioners were being graduated with no more than a high school education and two years of formal medical training. Yet some of these very doctors have made outstanding contributions to medicine. Should the medical profession, then, perhaps begin to think of educating two types of medical practitioner, one for areas which lack medical resources—to be a man or woman with elementary medical and public health training—and the other a fully trained physician who can serve as guide and mentor to the first? To go one step further. It is generally considered wasteful and inappropriate to take health personnel out of their environment in order to train them. To give only one instance: it is said that in the Netherlands East Indies nurses who were trained in the larger cities found when they got back to their village that they were unable to boil water for lack of gas. But Hydrick's experiences with the same people forcefully brought home to the doctors the tremendous value of locally trained women picked right out of their native villages, who proved better able to enter the inhabitants' homes and win their confidence than were the doctors themselves. The "diener" has always been famous in laboratories for his all-round usefulness to the researcher. Perhaps we in the medical profession, short-handed as we are in many areas, may need to learn to develop "dieners" who will serve as medical extensions of ourselves in such fields as health education, hygiene, and nutrition.

The World Health Organization, as it begins its official functional life, needs to be able to count on you in the World Medical Association as the ultimate effectors for any and all projects leading toward total health. In each and every country it is the practising physician who will be making the diagnoses, treating the ills, gearing his efforts into such governmental health projects as are in existence. WHO looks to those physicians to be articulate and forceful figures in their own communities not only as regards good medical practice but also as regards fundamental philosophies of public health, preventive medicine, and the development of sound social thinking. This challenge for all of us, to be in at the beginning of WHO and WMA, opens up such enormous and splendid fields for action that, to me at least, it is exciting and humbling all at once, and I join with you in eager anticipation of what these two organizations, acting in harmony, can achieve.

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE

It has been pointed out to us that in the postgraduate section of the Educational Number, published on Sept. 4, inadequate reference was made to the London School of Tropical Medicine and the facilities which it affords to those seeking the D.P.H. and the D.T.M.&H.Eng. This was certainly not due to any lack of appreciation of the work of this great School—the only body which conducts a recognized course for the academic diploma in public health of the University of London. Its work has been described on many occasions in these columns. A long account of its present activities appeared as recently as June 5 (p. 1098). As in the case of all the other schools and institutions referred to in the Educational Number, a request was sent for the latest information, and by some mischance no reply was received from the London School, and in the mass of material which was forthcoming from other sources its outstanding position received, inadvertently, too scanty notice.

The course of study for the diploma in public health at the School lasts nine months, and the course for the diploma in tropical medicine and hygiene, designed to meet the requirements of the English Conjoint Board, lasts five months. The course in bacteriology lasts one academic year. Special three-monthly courses are given in the principles of medical statistics and statistical methods, and special courses, by arrangement, in physiology as applied to industry. The School's diploma in public health is taken by as many students as those of all the other universities put together. For the D.T.M.&H. the School teaches an average of 120 students a year, and for the diploma in industrial health it last year trained 21 students. The prestige of the School, with its fourteen full-time professors, was never higher than to-day. In addition to its teaching work, which is continually growing heavier, a great deal of research is carried on under the auspices of the School. A notable instance was the demonstration of an exo-erythrocytic cycle in malaria described in two articles in the *Journal* earlier in the year (March 20, p. 547, and June 26, p. 1225). A farm at St. Albans has been acquired as the field station of the School, and here the breeding of laboratory animals on a scale sufficient to supply the wants of the various departments has been undertaken.

Full particulars of the courses at the School and other information are obtainable on application to the Dean, London School of Hygiene and Tropical Medicine, Keppel Street, London, W.C.1.

INDUSTRIAL MEDICINE

INTERNATIONAL CONGRESS

The Ninth International Congress on Industrial Medicine, held at Caxton Hall, Westminster, the opening of which was briefly reported in our last issue (p. 570), continued its sessions from Sept. 13 to 17. The members attending numbered about 750, of whom 270 were from abroad. The presentation of nearly 200 papers was accomplished only by having three or four simultaneous sessions each morning and afternoon. Receptions were given by the Government, the Royal Colleges, the British Medical Association, and other bodies, many exhibitions and visits of technical interest were arranged, and there were almost continuous film showings—altogether a very full programme.

Organization of Industrial Medical Services

This subject extended over three sessions, chiefly occupied by descriptions of arrangements obtaining in different countries. Dr. P. MAZEL spoke of the system in France, where a law was passed in 1946 whereby all establishments employing paid workers, whatever their number, are compelled to arrange for medical services. Doctors are chosen by the employers and paid at a rate legally fixed. Dr. L. GREENBURG related the practice in New York State, with its 52,000 factories, and Dr. J. G. TOWNSEND mentioned the very important part played by the Industrial Health Division of the U.S. Public Health Service in assisting the State departments with detailed studies of working environment. Dr. A. BRUUSGAARD told the Congress about the Industrial Medical Services Council founded by the Norwegian Federation of Labour, the Norwegian Employees Association, and the Norwegian Medical Association. Industrial health services in Finland, where there is free medical treatment not only for the worker but for his family, were the subject of papers by Dr. A. NYYSSONEN and Dr. L. NORO, the latter speaking of the new Institute of Occupational Health at Helsinki, established by the Government in 1946 but not working fully until next year. The function of this Institute will be to protect the physical and mental health of the workers by research, training in hygiene, and attention to environment. A body in Italy, known by the initials E.N.P.I., dealing with propaganda against industrial accidents and with the hygiene of labour, was described by Professor C. PANCHERI; and finally Dr. N. L. LLOYD outlined the organization of the medical services of the Ministry of Supply, whose full-time, part-time, and sessional medical officers numbered nearly 100, with some 140 nurses. The medical needs of small factory units, he said, especially in isolated districts, could be covered satisfactorily only by the part-time services of a general practitioner.

Dr. A. J. ORENSTEIN gave an account of the health services for South African mine-workers. A full-time medical service has been in operation in South Africa since 1914. The improvement in mortality from certain diseases was illustrated by graphs. The loss of working days in 1947 per person employed was 2.86 as a result of illness and 2.71 as a result of accident. The cost of the service, including hospital costs, is about 52s. a year for each African worker employed. Other speakers gave an account of the organization of industrial medicine in the mines of Northern France, in the factories of the Netherlands, and in the leather and rubber industry of Czechoslovakia.

The Right Hon. G. A. Isaacs, M.P., Mr. T. E. A. Stowell, Professor Pierre Mazel, and Lord Moran, P.R.C.P., at the inaugural session of the Ninth International Congress on Industrial Medicine.

An Australian member, Dr. J. H. GOWLAND, spoke on the medical officer's contribution to industrial efficiency. What can a medical man supply to industry which is not available from other sources such as the chemist, the engineer, the safety officer? And, again, in what circumstances will the doctor best be able to supply this service? Dr. Gowland's suggestion was that, while the doctor cannot be expected to know in detail the technique of a particular industry, his clinical knowledge and his professional prestige are of great importance. In Australian industries the medical service is in its infancy, and the speaker asked for criticism and guidance.

Medical Supervision in Industry

A session devoted to medical supervision in industry was opened by an official of the International Labour Organization, Dr. H. A. DE BOER, who said that the greatest service rendered by the international conventions and recommendations enacted during the last thirty years had been the making of medical examinations compulsory for certain groups of workers, both industrial and non-industrial. Other directions in which medical science had made its influence felt through legal process had been factory inspection and the establishment of medical services. Dr. H. P. DASTUR reported on medical supervision in Indian industries. The Indian Government had enacted an employees' State Insurance Act, and the medical profession was urging the Government to start institutes of industrial hygiene. Difficulties of an industrial medical department in India arose from illiterate and migratory labour, the poverty of the country, shortage of food, lack of appreciation of the special needs of women workers, and the lack of industrial nurses.

A Belgian organization, the "Centre de Médecine du Travail et de Psychotechnie" of Couillet, was the subject of a paper by Dr. J. NOPPIUS. The organization, which covered about 10,000 workmen, undertook clinical, radiographic, and laboratory examinations, and there was a department for psychological investigation. It did not undertake treatment but handed over its records to the private practitioner. The majority of abnormalities or diseases which it had discovered related to the pulmonary or cardiovascular systems. Dr. Noppius added that the records showed that fairly wide deviations from what was regarded as the normal cardiovascular and respiratory condition were compatible with apparently normal working efficiency; but a thorough knowledge of the individual worker was required to estimate the effect of strains and stresses.

Student Health Services

From medical supervision in general the discussion passed to the supervision of student health as a somewhat neglected branch of industrial medical care. Dr. W. G. DONALD said that his University of California, which has 24,000 students in its community, had established a health service which diminished the possibility of contagion by compulsory examination on entrance and by vaccination, and controlled epidemics by immediate segregation of the sick in hospital and by putting them in quarters in quarantine. It provided facilities for the treatment of the acutely ill and injured. It had a hospital of 180 beds capable of expansion to 430 on emergency, and an adequate medical and surgical staff. An out-patient clinic was open nine hours a day to give care and advice, and twenty-four hours a day to deal with emergencies. The cost was borne by the university, and there was no charge to the student unless

he was in hospital for more than 30 days. The service also controlled the environment, health, and safety of the living and working quarters, and controlled the choice and preparation of food.

In some discussion it was suggested by medical officers in university centres in this country that the student was subjected to a special occupational stress in the shape of recurrent examinations—a stress to which young people in other occupations were not subject—which often brought about a lowering of health standards and sometimes breakdown. Dr. W. N. LEAK said that the effort to improve student health should begin before the student's university career, and some approach should be made to head masters of county or secondary schools who tended to "push" students.

Dr. DE VERICOURT spoke of a student health scheme in Paris which is run by the Ministry of Education. It included preventive medical control of all students, who were examined on entry into the university, and subsequently at certain periods. The examination employed laboratory and *x*-ray methods, and vaccination was required. In cases of tuberculosis the student was sent to a special sanatorium, where he had the opportunity, if he could avail himself of it, of continuing his studies, and from there he was discharged by easy stages to convalescent homes. In reply to a question Dr. DONALD said that of the Californian students who came under the health service 60 or 70%, in his judgment, were fit for military training.

Training of Industrial Medical Officers

Professor J. M. MACKINTOSH presided over a session for a discussion on the training of the industrial medical officer. Professor R. E. LANE said that the whole-time industrial medical officer should have spent one year in postgraduate study in preparation for his work. Too narrow a specialization should be avoided. The preventive approach must be stressed all the time. Teaching might be by means of lectures and demonstrations, seminars, symposiums, and syndicates—meaning by this last the splitting up of a class into groups under a leader who, after discussion in the group, formulated their conclusions before the whole class. Drs. R. HUSSEY and S. F. MEEK put forward the American standpoint. Their view was that a formal educational programme was necessary for the industrial medical officer and that it should include periods of practical experience in the medical departments of commercial and industrial concerns. Professor R. C. BROWNE described the department of industrial health initiated by the Nuffield Foundation in the University of Durham in 1944. First priority was given to research and second to teaching, and the departmental effort was distributed about equally to the bedside, the laboratory, and the factory. Surveys on miners' nystagmus and the industrial health of workers were in progress. Throughout the whole of the research and clinical practice of the department there was the closest integration of clinical, industrial, and social aspects.

Dr. R. S. F. SCHILLING put forward the view that what was needed in teaching was fewer general principles and more detail. He also said that the walls between the departments of public health and of occupational health should be thin, and there should be a communicating door. Dr. W. J. LLOYD mentioned the value of getting undergraduate students to spend a morning at a factory. An Indian delegate suggested that the industrial medical officer should be first required to serve for from three to six months as a lay inspector of factories.

A subsidiary discussion dealt with industrial medicine and the law. Mr. MOELWYN HUGHES, K.C., and Dr. P. PRINGLE expounded English law so far as industrial medicine is concerned, in particular the major provisions, namely, the Factories Acts, and the Acts dealing with shops, ships, mines, and a few specific industries. The minimum requirements of occupational health prescribed by these Acts were supplemented in recent legislation by provisions for developing medical services through joint consultations on matters affecting health. Other speakers reported on labour legislation in Italy and in Argentina. Dr. CATHERINE SWANSTON reviewed the protective legislation for women and young persons in industry. Even now the law as it stood in relation to women and young persons was in many respects out of date, illogical, and uneven in its application, and required examination and revision.

Occupational Health and Rehabilitation Services

Dr. G. E. GODBER gave a brief exposition of the British National Health Service. The greatest commendation the new service had received, he said, was that few people had noticed the change. The service had many gaps, but at least it had begun. Asked whether the available doctor-power and the actual cost of the service had been taken into consideration, Dr. Godber said that the new service did not suddenly impose an enormous new burden on either financial or medical resources. It made the best use of what was available, and provided for development as resources increased. At least an even distribution was secured.

Dr. G. DECHARNEUX gave an account of a factory service at Liége of which he is chief medical officer, and which included, in addition to care of accident cases, specialist consultations and a medico-social service. He said there was a cordial relationship between the factory doctor and the general practitioner; the former handed the cases over to the general practitioner for treatment.

The placement of disabled persons was discussed by Dr. F. E. POOLE on the basis of the experiment originally developed at Lockheed, which had been used successfully there in placing over 20,000 "limited" employees. He pointed out that the majority of disabled persons had more ability than disability. Pre-placement examination should take cognizance not so much of any specific defect as of deficiency in the applicant's capacity which prevented him from performing certain types of work with safety. The problem was to match the "limited" worker to the job he could perform without danger to himself or others. A Californian doctor, Dr. B. HANMAN, pointed out that placement required a knowledge of the education, interests, aptitudes, temperament, and personality of the individual. Within each disability there were variations as wide as those in the general population. It was not sufficient to give a one-armed man a one-armed job.

Professor T. FERGUSON described the development on the industrial estate at Hillington, near Glasgow, of a sheltered workshop for severely disabled men. The aim throughout had been to keep medical supervision so far as possible in the background and to run the enterprise on ordinary industrial lines. Benches were arranged so as to accommodate the disabled worker, doors were specified of a certain width to admit invalid chairs, and so forth. After two years the success of the venture was apparent. Over-all absence was only 7.5% of the total number of working days. The output had gradually risen and had become stabilized at about the tenth month. The directors considered that the financial result justified reasonable confidence in continued success. The best testimony was the happiness, enthusiasm, and sense of corporate life of the workers themselves. They worked as a team, helped each other, and developed social interests outside the factory.

Toxicology

Five sessions were devoted to toxicology. The first paper, by Dr. A. JORDI, described cases of psychic disorder observed in Switzerland as attributable to industrial poisoning by lead, mercury, and many organic solvents. The symptoms were loss of memory, slackening of mental processes, and nervous irritability. Treatment by vitamins B and C had proved helpful. Two Italian medical men mentioned the occurrence of epileptic fits in persons handling trimethylenetrinitroamine, an explosive obtained by treating urotropine with nitric acid. Of some 20 workmen exposed to the dust, 17 had convulsive fits or attacks with loss of consciousness, isolated or repeated.

The clinical aspects of hydrogen sulphide poisoning as seen in the Swedish shale industry were discussed by Dr. G. AHLBORG. During the last five years there had been 100 cases of acute and subacute poisoning, 20 of them with sequelae which could be followed clinically. Dr. E. BERG spoke of the early diagnosis of lead poisoning in Denmark by means of blood analysis. The blood lead, he said, was the most precise indicator of lead absorption and therefore the most important diagnostic criterion in prophylactic control. In Norway, according to Dr. E. THIS-EVENSEN, hexanitrodiphenylamine was liable to set up eczema in those working with it. Two Swiss physicians brought forward a few cases of bronchial asthma caused by α-β-dichlorodiethyl

ether among workers in a chemical plant who had been exposed to high concentrations of this substance. Another Swiss observation was that high altitude was a means of treatment of chronic benzol poisoning. In 15 cases patients suffering from chronic benzol anaemia had been sent to Montana, 1,800 m. above sea level, with good effect in every case.

Professor RENÉ FABRE discussed the toxicity of trichlorethylene and the symptoms of chronic intoxication caused by it, and emphasized the importance of determining the trichlorethylene content of the urine as a measure of its penetration into the system. Dr. K. REJSEK described an allergic illness in employees in a Czechoslovakian factory manufacturing castor oil. The illness was characterized by severe conjunctivitis and acute dermatitis.

British anti-lewisite was reviewed by Professor R. A. PETERS. Clinical trials with B.A.L. had proved effective therapeutically in a high proportion of cases in arsenical dermatitis. It had also an important therapeutic action in poisoning by mercury compounds. Professor S. CACCURI said that poisoning from T.N.T. in munitions factories was often seen in Italy. The chief symptoms were blood changes and hepatitis. Experimental research had shown that T.N.T. produced erythropenia, leucocytosis with eosinophilia, diminution of platelets, and prolongation of clotting time. Professor DERVILLEE and Dr. ROBERT related a few cases found in France of intoxication by T.N.T. fumes or dust. The pathological effects consisted of nervous and digestive disorders and relapsing dermatitis. An unusual outbreak of mercurialism in an Italian felt-hat factory was described by Professor VIGLIANI and Dr. BALDI, the principal symptoms being tremor, psychic excitability, gingivitis, and rheumatic pains. Thanks to strict medical control and many hundreds of quantitative analyses of the mercury content of the fur, the water in the shrinking-tanks, the urine of the workmen, and the air, new cases now hardly ever appeared.

The Newer Metals

Great interest was shown in a discussion on the new metals, especially beryllium. Professor W. MACHLE defined berylliosis as a general disease, characterized chiefly by pulmonary symptoms, resulting from inhalation of finely divided beryllium compounds. He gave a clinical study of 60 cases occurring in the United States. Dr. J. M. BARNES described an experimental investigation into the toxicity of beryllium. The average lethal dose, injected intravenously, for mice, rats, and rabbits was 0.75 mg. per kilo. Death occurred in two to four days with liver necrosis, but small quantities had been ingested for a year by rats and mice without producing any evidence of disease or pathological changes in the tissues. Dr. C. R. WILLIAMS analysed the occurrence of about 100 chronic cases in the United States and their relation to the industries in which they occurred. He said that correlation of cases with environment still remained the most important evidence against beryllium.

In further discussion Dr. J. N. AGATE suggested that berylliosis might become so serious that it would be well to press for it to be made notifiable. It would be a great advantage to get such legislation through before a really big crop of cases occurred. He also said that the liver biopsy procedure should be used wherever possible. Dr. PETER NASH said that until the American experience which had just been related to the Congress no one had discovered any correspondence between the intensity of the exposure and the incidence of the disease. Dr. H. LISCO said that in Chicago cases of beryllium poisoning were found in people who had been exposed for a very long time before giving evidence of any pathological manifestation. In his view beryllium should be treated as a radioactive substance so far as air contamination was concerned. Dr. NIXON urged that individuals who had been exposed should be followed up for a long time after exposure had ceased. Lesions might appear as long as ten years after exposure.

Dr. A. J. VORWALD and other American workers urged caution before applying in the clinical field the results of experimental investigations. There was still doubt whether some additional factor other than beryllium itself was not the precipitating agent. After a number of years' experimentation with beryllium it had not been possible to produce the classical unit lesion in animals. Dr. C. R. WILLIAMS, an American worker, said that it did not necessarily require more exposure to produce an acute case than to produce a chronic one. The maximum allowable concentrations had still to be determined, and pending such determination it would be most unwise to give the authorities any figure "which they could hang their hats on."

Occupational Carcinoma of Bladder

Diverse views were expressed on the problem of bladder tumours in the dye industry. Dr. G. H. GEHRMANN and two American colleagues presented evidence that aniline does not produce bladder tumours. Beta-naphthylamine was the only compound with which they had been able to produce tumours experimentally. The term "aniline tumour of the bladder" was a misnomer. Dr. G. DI MAIO, who spoke in Italian, had found on urological examination of 186 workers some 34 tumours and 68 cases of congestion, most numerous among those employed in the benzidine department, and decreasing in the other departments, being lowest among the workers with aniline. Two other Italian contributors also said that benzidine had the highest carcinogenic power, beta-naphthylamine coming next, and aniline and the other amines being much less potent. A worker in Basle, Dr. A. MÜLLER, on the basis of 132 cases of industrial disease of the bladder, found benzidine and beta-naphthylamine most prominent as causal factors. Preventive measures—combating dust by suitable construction of plant and buildings, replacing dangerous bases by innocuous salts, and practising cystoscopy as a routine for all particularly endangered—had brought about the disappearance of severe cases; other cases had been discovered in an early stage and timely treatment undertaken. Dr. GEORGINA BONSER said that experimental investigation of this industrial disease lagged far behind clinical knowledge, and the reason was the failure to find a suitable experimental animal. Dr. C. BELLESINI said that benzidine had been produced in a dye factory in Upper Italy during the last 15 years in such a manner that not a single case of tumour of the bladder had occurred among the workmen. These last two speakers declared that there was no real evidence that benzidine was carcinogenic.

Dr. W. M. GOLDBLATT said that this disease was local to an industry. Men died of it, and died in considerable numbers. Those who maintained that it had no relation to occupation should undergo a process of corrective education. The time had come when the disease should be compensable. It was most important in defining loss of faculty in relation to this disease not to define it in relation to a particular process. In spite of all the negative experiments the men who died had worked with benzidine or with aniline. To define loss of faculty only in relation to beta-naphthylamine would be cruel and unjust. He knew of one factory where from 14 to 16% of the men had had haematuria at one time or another. Many of them were going to die of carcinoma of the bladder, though by medical supervision and treatment their lives might be prolonged. They should be compensated by law, not left to receive an *ex gratia* payment from employers. Many who left the factory with a completely normal bladder so far as the cystoscope could determine, and showing no symptoms, developed a tumour years afterwards. Dr. Goldblatt analysed a series of 102 cases, and indicated the relatively early ages at which these tumours appeared as compared with the occurrence of bladder tumour in the general population. He concluded by asking, "Why should it only be the bladder?" The answer was that it was not; sometimes it was the kidney, as proved by pathological specimens.

Pneumoconiosis and Other Lung Diseases

Many papers on pneumoconiosis were presented. Professor J. GOUGH and Dr. J. E. WENTWORTH spoke on the pathology of the condition among coal workers in Wales and demonstrated a technique they had devised for cutting and mounting as permanent preparations thin sections of the entire lung. Dr. A. BRUUSGAARD described a condition found in silicon carbide workers in Norway; 10 out of 32 on a plant producing carborundum showed changes in the lungs which could be detected in chest radiographs. Two Czechoslovakian workers described a pneumoconiosis due to exposure to the dust of stannous oxide. Silicosis in Switzerland was the subject of a paper by Drs. F. LANG and A. STOKLY. Out of a total of 1,447 persons notified between 1932 and 1946, about 25% had died.

25% were on pension, and the remainder were still at work. About half the sick ended with an added tuberculosis. Workers from Belgium, Sweden, and the United States gave their experiences.

Dr. T. A. LLOYD-DAVIES described a pneumonitis found in men exposed to the dust of manganese oxide. His conclusion was that the inhalation of the manganese-containing dust, without the operation of any additional factor, caused pneumonitis. Dr. K. M. A. PERRY mentioned an acute respiratory illness in which radiographs showed miliary shadows throughout the lung fields among workers in a factory using bagasse, which is sugar cane after the sugar has been removed. Finland, apparently, is the country in which mass radiography is most popular. Dr. CARL WEGELIUS said that about 70% of the population of Finland over the age of 10 had been examined—the highest known figure in mass radiography to date—and many people had been radiographed five times. The mass radiographs were collected in one central archive, where they were read by competent radiologists.

Metal fever produced by copper dust was described by Dr. E. H. SCHIOTZ. It is a fever resembling "brass-founder's ague." The "copper fever" of Sweden and Norway corresponds to the "zinc fever" of Germany and the United States, and the comprehensive designation "metal fever" was suggested. On this point Dr. VAN LUIJT instanced five cases seen in Holland in men who, while unloading ships, had inhaled a large quantity of the fine dust of copper sulphate snow used in agriculture and had shown symptoms lasting in an acute form for two months.

Industrial Hazards

The hazards of specific industries occupied three sessions. Dr. GEORGE FLETCHER spoke of byssinosis as found among card-room workers in Lancashire; it was an affection of the lungs which gradually developed over the course of years. Dr. G. BUCHANAN reported on the occupational hazards of the dock worker, more especially his liability to accident: an average of 8,000 accidents were reported yearly in dock labourers. Professor E. A. PALUCH set out the haemoglobin levels among certain occupational groups in Poland in the immediate post-war period. Industrial groups showed a mean haemoglobin level from 25 to 30% lower than that in corresponding English groups, whereas the haemoglobin level among agricultural workers in both countries was about the same. The leather trades came in for special mention. An account was given of various complaints found particularly among those engaged in shoe manufacture in Czechoslovakia. Dr. ALICE STEWART gave an account of the incidence of pulmonary tuberculosis in the Northamptonshire boot and shoe industry. She had found that in this industry the incidence of active tuberculosis was not uniformly distributed: men and women employed in large crowded workshops contracted the disease more frequently than those who worked in small rooms or less crowded rooms.

The dust problem in mines was the subject of a series of papers, among which should be mentioned Mr. H. H. WATSON'S study of the variation in dust conditions at the coal face. Potential hazards in the handling of radiant energy had a session to themselves. Dr. G. FAILA, of the United States, laid down certain permissible limits of exposure to ionizing radiations. With ordinary *x* rays or gamma rays he suggested a permissible limit for exposure of the whole body of 0.3 roentgens per week measured in air; for exposure of the hands only, 1.0 r per week, and for a single exposure of the whole body in a lifetime, 25 r for persons from 21 to 45 years of age, and 50 r for persons over that age.

Surgical Conditions Found in Industry

Mr. WILLIAM GISSANE'S outline of the organization of an accident service was followed by a discussion in which Dr. R. A. TREVETHICK and Dr. H. MOORE gave their experiences. The latter said that he was concerned as he went about the country to find the large number of excellently equipped dressing stations which were being used only for the dressing of simple injuries, while all other cases went automatically to the general or accident hospital and often were not seen at the station at all, the man coming back certified fit for his job. He wished to see all cases of incapacity, if they were not of more than moderate degree, treated in industry, and also to see all cases that had been treated as out-patients in hospital coming back to industry for full treatment afterwards, provided the facilities were there. Dr. GOEDERTIER said that in Belgium they did not like sending their cases of injury to hospital, preferring to treat them locally if possible.

Dr. F. FRIEND analysed the radiological appearances in 500 unselected cases of low backache and sciatica seen at Manor House Hospital. He declared that routine examination of the lumbo-sacral region in young people entering industry was as important as *x*-ray examination of the chest. Professor E. D. TELFORD discussed the pathology of "dead hand," and illustrated the causes, incidence, and contributory factors by referring to an extensive outbreak in an aero-engine factory. Although there seemed to be at present no means of abolishing the disease, various devices were suggested which might reduce its incidence. Drs. S. H. HARRISON and ELIZABETH TOPLEY reported on an investigation made with a view to defining the value of systemic penicillin in finger-pulp infections. They concluded that there was evidence that local penicillin at operation and systemic penicillin for a complication were both much less effective than systemic penicillin started before operation. Dr. R. A. TREVETHICK described investigations which had taken place at a branch of United Steel Companies into the incidence of sepsis in heavy industry and discussed prevention and treatment.

Professor W. MACHLE and Dr. F. GREGORIUS reported on the occurrence of cancer of the respiratory system in the chromate-producing industries of America. A high death-rate from cancer was found among exposed workers: 23% of all deaths in the industry during the period of study were reported to be due to cancer of the respiratory system. Dr. A. THELWALL JONES said that among most surgeons there was no doubt at all of the considerable increase which had taken place in the incidence of bronchial carcinoma in men, and Sir CECIL WAKELEY, who presided, said that even labourers in orchards were now liable to get this condition in the course of their employment owing to the universal adoption of the use of arsenic, copper sulphate, nicotine, and tar oil.

A number of papers were read on dermatological conditions met with in industry. Two French investigators described intolerable nocturnal pruritus among carpenters using iroko wood or African oak. Dr. W. BLOOD spoke of the erysipeloid of Rosenbach, an occupational disease of the skin usually affecting the fingers or hands, and occurring among workers in the catering and allied trades. He described seven cases which had been successfully treated with intramuscular penicillin. Three workers described granulomatous skin lesions produced by beryllium compounds and showing a marked resemblance to sarcoidosis.

The Workers' Environment

Sessions were devoted to various questions affecting environment—lighting, architecture, thermal comfort, and other factors. Discussing thermal acclimatization to hot climates, Dr. MACDONALD CRITCHLEY said that the pathology of acclimatization was not well understood, and the psychology of it hardly touched upon at all. Tropical acclimatization was far from being a purely physiological mechanism. The acclimatized person had learned to adopt certain attitudes of mind, and the degree of his hardness, the state of his thyroid, and the number and distribution of his sweat glands might all be highly important in determining acclimatization. As for hardening for cold, he pointed out the curious fact that Arctic explorers were very much worse off in their second year in the Arctic than in their first. Acclimatization to the jungle (moist heat) implied some measure of acclimatization also to the desert (dry heat). It had not infrequently been noted that people home from the Tropics stood the cold rather better than the average person in this country. In Scott's expedition to the Antarctic the man who withstood the cold better than the others was an officer of the Indian Navy who joined the expedition in the Persian Gulf.

Illumination in factories and coal mines was discussed, and there was a symposium on colour vision. One contributor, Dr. W. D. WRIGHT, said that from 4 to 8% of the male population had defective colour vision, and therefore pre-vocational tests were highly desirable, to be undertaken either at school

or in industry. Dr. L. G. NORMAN suggested that the mass testing of groups of school-children for colour vision would present a number of difficulties, and advocated the establishment of centres at which full colorimetric tests might be carried out.

Papers were also presented on atmospheric pollution, on the problem of fatigue, on electrical accidents, on job placement and analysis, and indeed on every aspect of industrial health.

Concluding Session

The concluding session was presided over by LORD WEBB-JOHNSON, who congratulated all concerned on a successful Congress and paid a tribute to the pioneers in industrial medicine. Mr. G. R. STRAUSS, M.P., Minister of Supply, said that, although Great Britain was perhaps not the first country to concern itself nationally with the health of the worker, he believed there were few countries where so much care was taken to secure health and safety in occupation and to look after the worker when sick and nurse him back to health. The National Health Service made no less necessary the Industrial Medical Service, and he was sure that medical men in industry would co-operate willingly in the National Health Service. Mr. Strauss, referring to a series of papers on hazards and prevention in relation to radiant energy which had been presented to the Congress, mentioned that his Ministry's Atomic Energy Research Establishment at Harwell would soon be producing enough radioactive isotopes to supply the entire medical demand in Great Britain and leave a surplus for export to meet the world demand.

Sir EWART SMITH, a member of the Advisory Council on Scientific Policy, followed with an address on the contribution of engineering to industrial health, and the Congress closed with complimentary addresses by Professor B. MAZEL and Professor L. CAROZZI, vice-president and secretary-general respectively of the Permanent International Commission for Industrial Medicine, which was founded at Milan in 1906 and includes representatives of twenty-five countries.

SOCIETY OF MEDICAL OFFICERS OF HEALTH

MR. BEVAN'S ADDRESS

The Society of Medical Officers of Health held its annual dinner—the first since 1938—on Sept. 16. The President of the Society, Dr. Frederick Hall, C.B.E., was in the chair, and the principal guest was the Minister of Health, the Rt. Hon. Aneurin Bevan, M.P.

In proposing the health of the Society Mr. Bevan referred in congratulatory terms to the launching of the National Health Service. The period of controversy, he said, was now behind them, and they were all looking forward to fruitful co-operation. This was a great experiment whereby a State-financed machine was co-operating with voluntary administration for the benefit of the public and the advancement of medical science. He fully expected that as the months went by many defects, some of them never foreseen, would be revealed, but the usual British capacity for improvisation and adaptation would make them good. One section of the community more harassed than any other by the possibility of heavy expenditure in serious illness was the middle and professional classes, and Mr. Bevan had been afraid that unwholesome propaganda might lead them to stay outside the Act. That danger was past. Already between 92 and 93% of the population had signed up with the doctors; signatures were coming in at the rate of 150,000 a week, and it appeared that by the end of the year practically the whole population would be in—"This means that the health service will be a classless service, and every section of the community will be in full enjoyment of its benefits."

Mr. Bevan went on to pay a tribute to medical officers of health, who had done a magnificent piece of work in getting ready for the Service and helping to launch it. The development of the Public Health Service during the last hundred years was one of the great features of British history. The relation of the Ministry with medical officers of health was quite special: the Ministry knew the value of these officers and knew that they would continue to serve as the unifying principle in the administration of the health service.

Dr. Frederick Hall, in response, spoke of the great importance of preventive medicine, which must be emphasized all the time if the National Health Service was to succeed in full measure. He assured the Minister that medical officers of health would give every support to these new developments. In reply to the toast of "The Visitors," proposed by Dr. J. Greenwood Wilson, Dr. H. Guy Dain, Chairman of Council of the British Medical Association, spoke of the good relations between the Association and the Society. Working together, they would do everything possible to ensure that the remuneration of medical officers of health was in line with that of other sections of the profession. "One thing the Minister has done has been to solidify the profession, and this would enable the best results to be obtained from the Service." Sir Wynne Cemlyn-Jones responded for the guests who represented local authorities, and said that local authorities also would do everything possible to assist in bringing the new service into full operation.

Nova et Vetera

THE HIPPOCRATIC OATH

The attempt of the World Medical Association to draft a pledge which can be adopted by medical men and women as a short code of ethics has given some publicity to the Hippocratic Oath, and also to the mistaken idea that this Oath is sworn to by the newly qualified doctor. It is reproduced in very few histories of medicine, and so we print below the translation of the Pagan Oath given by Mr. W. H. S. Jones in his book *The Doctor's Oath* (Cambridge University Press, 1924). There are other versions of the Oath, one, for example, "in so far as a Christian may swear it," and also an Arabic version.

Pagan Oath

"I swear by Apollo Physician, by Asclepius, by Health, by Heal-all, and by all the gods and goddesses, making them witnesses, that I will carry out, according to my ability and judgment, this oath and this indenture:

"To regard my teacher in this art as equal to my parents; to make him partner in my livelihood, and when he is in need of money to share mine with him; to consider his offspring equal to my brothers; to teach them this art, if they require to learn it, without fee or indenture; and to impart precept, oral instruction, and all the other learning, to my sons, to the sons of my teacher, and to the pupils who have signed the indenture and sworn obedience to the physicians' Law, but to none other.

"I will use treatment to help the sick according to my ability and judgment, but I will never use it to injure or wrong them.

"I will not give poison to anyone though asked to do so, nor will I suggest such a plan. Similarly I will not give a pessary to a woman to cause abortion. But in purity and in holiness I will guard my life and my art.

"I will not use the knife either on sufferers from stone, but I will give place to such as are craftsmen therein.

"Into whatsoever houses I enter, I will do so to help the sick, keeping myself free from all intentional wrongdoing and harm, especially from fornication with woman or man, bond or free.

"Whatsoever in the course of practice I see or hear (or even outside my practice in social intercourse) that ought never to be published abroad, I will not divulge, but consider such things to be holy secrets.

"Now if I keep this oath and break it not, may I enjoy honour, in my life and art, among all men for all time; but if I transgress and forswear myself, may the opposite befall me."

Mr. Jones also gives the oaths adopted by the Faculty of Medicine at Montpellier, and that taken by Glasgow medical students on graduation.

Correspondence

Prevention of Dust Diseases of the Lung

SIR,—Professor A. Meiklejohn (Aug. 21, p. 399) rightly re-emphasizes the urgent need for a definition of the "dangerous" stage of pneumoconiosis at which a man must be advised to leave a dusty working environment in order to be safe from serious consequences. I do not believe that in defining this stage as "pin-hole nodulation" Drs. A. Harper and J. M. Morgan (Sept. 11, p. 530) really get us any further; for this is another *qualitative* term like Hart and Aslett's "reticulation" and leaves unanswered the question, How much pin-hole nodulation? or, How much reticulation?

Drs. I. Davies and K. J. Mann have this week presented to the Ninth International Congress on Industrial Medicine a proposed classification of radiographs of coal-miners' pneumoconiosis which contains the *quantitative* element which has hitherto largely been missing from schemes of radiological classification of the pneumoconioses. Instead of giving descriptive terms to the various degrees of simple pneumoconiosis they use four numbered categories of increasing intensity. These categories are not merely defined by verbal definition but by standard radiographs.

In another paper which I and my colleagues contributed to the same Congress we record that out of 103 cases in which we have films showing the earliest stage of progressive massive fibrosis the associated simple pneumoconiosis is of category 3 in all but two cases. In these two cases it is only just below this category. We therefore suggest that men could be almost completely protected against developing massive fibrosis and its attendant disability if they were advised to leave a dusty working environment before they reach category 3 pneumoconiosis. It is because men in this stage are nearly always symptom-free that they can only be detected and given appropriate advice by routine periodical examinations. It should be noted that, with the institution of efficient dust-suppression methods, leaving a dusty working environment does not necessarily mean leaving underground work.

I still contend that men who have already reached a more advanced stage than category 2 simple pneumoconiosis may be advised to remain at their accustomed work under supervision *if they so desire*, so long as they have not got open tuberculosis. Some evidence in support of this contention is given in our paper referred to above. Drs. Harper and Morgan only confuse the issue by introducing a completely invalid analogy between crush injuries of the hand and pneumoconiosis. If a man will be economically and psychologically better off by staying at work and if there is good evidence that he will not prejudice his health by so doing, then surely he should be reassured and advised to do so.—I am, etc.,

Pneumoconiosis Research Unit,
Llandough Hospital,
Nr. Cardiff.

C. M. FLETCHER.

Control of Dental Caries

SIR,—Your leading article (Sept. 11, p. 522) raises several interesting points concerning a subject that is badly neglected in the medical and scientific world. However, the general conclusions are rather negative and may, I think, be a little misleading. For example, you refer to the 40% reduction in caries incidence resulting from local fluoride applications. It is sometimes supposed that this figure refers to the number, or proportion of some population, who suffer from caries; it really refers to the number of new carious lesions detected in the teeth of American children in a certain time interval—i.e., the rate of caries attack in children, or the incidence of caries on the surfaces of their teeth—not its incidence on the population.

You also refer to claims made for this method of caries control, though it is the only method whose efficacy has been conclusively proved by repeated and rigorously controlled experiments on human material. The evaluating committee of the Michigan conference[1] refers to the findings as facts, not as claims, and the Council on Dental Therapeutics of the American Dental Association[2] also regards the facts as conclusively proved. The journal of that Association has advocated the general adoption of this technique.[3] The apparent reluctance of English dentists to accept this advice does not arise from any serious criticism of the validity of the American findings but from quite other reasons.

You agree with Weaver in regarding postponement of caries as distinct from real prevention, and regard a three- or five-year postponement as relatively brief. But relative to what? How long is the average life of an Englishman's tooth or set of teeth? The bulk of dental suffering in children results from caries of the temporary molars occurring in the last five years of so of their normal period of retention. Postponement of this would be real prevention. Also most permanent teeth are lost from paradontal disease, yet most dental pain results from caries. Even if one considers five years as a brief period by which to prolong enjoyment of a natural dentition, the avoidable suffering from toothache or dental treatment or both is not negligible. Surely prevention need not mean total prevention, and a simple, cheap, and harmless method of partial prevention, whose limited efficacy is undoubted, *does* justify enthusiasm.

To wait for a universal panacea is unrealistic, and if we are to be only moderately satisfied with such a simple and certain method of partial prevention what must our attitude be to ordinary dental surgery, that most unpleasant and expensive of all methods of control? It cannot even be claimed that dentists postpone the loss of teeth from caries as much as fluorine is known to.

In finding no reference in the report to the effect of recent dietary changes you must have overlooked the remarks of Becks[4] near the end of his paper. He said, "Recent post-war observations in England, Italy, India, and Sweden emphasized the fact that the reduced sugar ration actually decreased the caries incidence of the population." You omit to mention what seems to me the most important conclusion of the conference, which is expressed in the evaluating committee's statement that "studies by a number of investigators indicate that the restriction of sugar, either refined or natural, is effective in the control of dental caries." They cite eleven references to support this statement. Dr. D. A. Wallace in his keynote address to the conference stated that though carbohydrate restriction might be the best method of caries control it was not much use as a public health measure since it was not acceptable to the public.

It is paradoxical that while the Americans are too freedom-loving to apply much of their knowledge of caries control, we on this side submit to having our diet planned by nutritionists who evidently lack that knowledge. The Ministry of Food's *Manual of Nutrition* favours concentrated starch-and-sugar foods and only refers to dental health in connexion with calcium intake, although there is practically no support for the theory that this is a factor in caries incidence. The neglect of this subject by English nutritionists is also apparent in a recent report on *Improvement of the National Diet*[5] by the nutrition committee of the Central Council for Health Education. I have criticized this elsewhere.[6,7]

I believe that a policy for the prevention of dental disease is long overdue, and I have before suggested that a conference such as that at Michigan University might usefully be held here. By making use of British and Continental, as well as American, literature it could make even more positive and useful recommendations, and to a Government that might be able and willing to act on them, at least to the extent of educating the public.—I am, etc.,

London, N.W.6. R. B. D. STOCKER.

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Fibrositis

SIR,—With great interest I read the article on fibrositis by Dr. Cyriax (July 31, p. 251), which to my mind is written from a very one-sided point of view and necessarily invites criticism and many objections. The author writes that the "existence of fibrositis . . . is denied by most pathologists," a statement which is likely to mislead the reader. What most pathologists may and do claim is that the macroscopic and microscopic examination of the diseased muscles does not show (by methods available at present) any morbid changes. But this fact is no evidence that there was no disease during life of the patient. The statement must be objected to that "going back to first principles (taking a detailed history, making a clinical

examination, and drawing deductions on accepted lines—procedures practised by every doctor) forces upon the unprejudiced observer the conclusion that the symptoms so readily ascribed in the past to 'rheumatic fibrositis' are all in fact the result of articular lesions."

Regarding the pathology of non-articular rheumatism it must be noted that many diseases are known which at present have no pathology. Migraine (paroxysmal headache) is a very well-known malady which belongs in this category. In many cases of angina pectoris the attacks of severe heart pain are due to transient relative anoxaemia (hypoxaemia), and are believed to be caused by a functional spasm of the blood vessels, but are independent of organic cardiovascular disease.[1] In gastro-intestinal allergy attacks of severe abdominal pain occur, with no objective signs, which are completely relieved by adrenaline (Hurst[2]). Severe pains in back, limbs, head, and eyeballs are a regular feature of many acute infectious virus diseases (smallpox, influenza, yellow fever, etc.). In all these maladies no pathological changes are known at present to occur in the painful areas, and the assumption that an interarticular displacement is present is obviously out of the question.

I strongly object to Dr. Cyriax's contention that the existence of spasm in several muscles provides a strong indication that the muscles themselves are normal, because several muscles may be and often are diseased. Nor is it correct to recommend as preconceptions to be discarded that a muscle in spasm is tender and that tenderness of muscle indicates a muscle lesion. Limitation of movements in more than one direction can and does no doubt occur if several muscles are affected.

For a proper understanding of non-articular rheumatism it is necessary to take into consideration at least two fundamental facts about muscle physiology. (1) A muscle contracting under ischaemic conditions (anoxia) gives rise to severe and agonizing pain (Sir Thomas Lewis); and (2) injection of hypertonic saline into a muscle is associated with referred pain (Lewis and Kellgren, 1938). Similar clinical observations have been made and published by me.[3]

In 1938 I described muscular rheumatism (myalgia rheumatica) as a muscular disease localized in well-definable parts of a muscle or its appendages. Several muscles may be affected (polymyalgia). The disease can be diagnosed objectively by the presence of "myalgic spots"; pressure on these spots elicits a severe and agonizing pain (not tenderness as described by most authors, which may be present in a normal muscle). As a pathognomonic sign I described the very important fact that pressure on a myalgic spot elicits an involuntary movement by the patient—e.g., jerking of head, shoulder, etc., or the patient "makes a face." The spots, of which the patient is absolutely unaware, do not coincide with the painful skin areas complained of, which are of a referred character. The myalgic spot is harder to the touch than the surrounding area; nodules are very rarely present.

I have put forward the hypothesis that the myalgic spots are due to a local vasomotor disequilibrium, either vasoconstriction by stimulation of the sympathetic, or abnormal vasodilatation by stimulation of the vagus (vagotonia), which would lead to a deficient local circulation and anoxia. The theory accounts for the symptoms of myalgia and explains the fact that injection of procaine into the myalgic spots leads to a cure. The latter has been confirmed by many authors (Moynaham and Nicolson,[4] Kelly,[5] and others). As a matter of fact evidence is accumulating that pain is very often a sympathetic phenomenon, produced by afferent vasoconstrictor axon reflexes from the periphery, and can be abolished by anaesthesia of the corresponding sympathetic ganglion (Leriche[6]).

Now Dr. Cyriax contends that primary rheumatic fibrositis is an imaginary disease. The symptoms erroneously ascribed to this condition are all the result of articular disorders (largely internal derangement) at the spinal joints. This is a very one-sided assumption for which no evidence is given (*x*-ray findings, narrowing of an intervertebral space). That manipulative treatments help or improve some cases is certainly no proof. On the other hand, the fact that local anaesthesia of all myalgic spots leads to a cure shows conclusively that an internal derangement at the spinal joints is a theory which scientific medicine cannot accept.

It would appear that displacement of an intervertebral disk has become a fashionable diagnosis, which in the opinion of many authorities is much too frequently diagnosed. Dr. Cyriax's article may, I am afraid, make doctors take up a wrong attitude towards the patient. Either psychoneurotic pain will be diagnosed, or medical men will, influenced by the theory of a displaced intervertebral disk, subject many patients unnecessarily to the severe ordeal of laminectomy. In my opinion this operation should not be considered unless there is conclusive *x*-ray evidence of a prolapsed disk and myalgia has with certainty been excluded.—I am, etc.,

London, N.W.11. M. G. GOOD.

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Intra-abdominal Hydrocele

SIR,—On reading through the *British Medical Journal* for the past year I came upon Messrs. D. P. Burkitt's and B. N. Kununka's interesting description of a case of abdominal hydrocele from the Lango district of Uganda (Aug. 2, 1947, p. 175).

In 1935 I published an account[1] of two cases of this condition in the Teso district of Uganda, one of the cases being of the same (Alango) tribe as that described by Burkitt and Kununka. At this time I could only find reference to 36 previously recorded cases. Dr. E. V. Hunter, however, told me of a case which he had also seen in the Teso country, so the disease does not appear to be very rare in endemic hydrocele districts such as the Eastern Province of Uganda.

I have made no study of any recent literature on the theories of causation. Macewen[2] believed that the funiculo-vaginal portion of the peritoneum, instead of terminating on the abdominal side at the internal ring, was carried as a sheath along the anterior aspect of the cord, "so that this funiculo-vaginal process of peritoneum would be continuous and patent from the testicular covering to the deepest part of the pelvic portion of the cord. When this elongated sac became distended with fluid, a bilocular hydrocele would form, the constriction being made by the aperture in the abdominal muscles through which it passed."

The most probable explanation, and one which has been supported by Jacobson, Reclus, and Villeneuve, is that distension with fluid occurs in a funiculo-vaginal process which is patent from the scrotum up to the internal abdominal ring. The internal pressure within such a sac causes expansion into the abdomen. This is the theory which is favoured by Burkitt and Kununka.—I am, etc.,

Nakuru, Kenya Colony. A. D. CHARTERS.

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Lumbar Sympathectomy for Varicose Ulcers

SIR,—I read with interest Mr. Harold Dodd's letter (Sept. 11, p. 532) on this subject, and was surprised at his interpretation of my article (July 24, p. 203). Unlike Dr. Marcus Werquin, of Paris, I do not advocate it as a primary treatment for chronic varicose ulcers. As clearly stated in the article, "only because all non-operative and all available operative procedures had failed was sympathectomy considered"; and then only because there was a vascular-stasis factor present with cyanosis, which was shown to be relieved following lumbar paravertebral block.

I wish to point out that in none of these four patients was lumbar sympathectomy thought of or resorted to until it was proved in each, by reference to past surgical records, scars, and veins on their legs, that the following criteria were satisfied: namely, there had been an adequate high ligation, with division of the internal saphenous vein at the saphenous opening, division of all named and unnamed branches there, besides, when necessary, further lower multiple division and excision of this vein lower in the leg, without any healing of the ulcer. To save printing space, this procedure, which is routine in Mr. Maingot's clinic at Southend, was not specifically stated in full but was implied in each case history.

I fully agree that supportive bandaging fortunately heals most varicose ulcers, but one has only to work and personally treat these patients in an out-patient varicose vein clinic

as was my duty while at Southend-on-Sea General Hospital, to realize that "some, in spite of all medical and surgical treatment, remain a chronic anti-social disability to their unfortunate owners." It was these that it was my pleasure and privilege to treat and thus far alleviate.

I agree that lumbar sympathectomy has but a small place in the treatment of ulcerated legs, but when it can be shown to heal chronic ulcerated legs where there is an associated element of cyanosis which responds to reflex vasodilatation, as did these, then it must be considered. I further believe in the importance of "continuing to wear an elastic stocking after treatment to protect the skin from trauma from without, and oedema from within."—I am, etc.,

Shotley Bridge, Co. Durham. JOHN BORRIE.

Treatment of Indolent Ulcers

SIR,—The countrywoman's philosophical attitude to an indolent varicose ulcer from which she may have suffered for years is often that "it is best not to heal it, lest the poisons be driven inward." In the days when such ulcers were incurable it was a comforting attitude of mind although it offered little bodily comfort.

Faced with ulcers of considerable size and venerable age, whose possessors refused to have their veins treated though their legs resembled a map of the Nile delta with its manifold ramifications, one was left with the problem of alleviating the pain without any possibility of putting the patient to bed owing to unending household duties and lack of help. After many experiments I find that the following is more satisfactory than anything of which I have read.

Gentian violet 1% is stirred into sulphonamide powder until it forms a creamy paste. The ulcer, previously cleaned by hot fomentations for two or three days, is now filled in with the paste level with the skin surface. The paste is allowed to dry thoroughly, which takes 15 minutes. This drying is essential, as otherwise the filling pulls away at subsequent dressings. The area is covered with a piece of well-powdered gauze or lint, and the leg bandaged in the usual manner from toes to knee with crepe bandage, ichthamol paste bandages, or, if the patient's skin is tolerant, an elastic adhesive bandage in which a window is cut to facilitate weekly dressings. At the first dressing the G.V.S. (gentian violet–sulphonamide) filling usually comes away with the lint, but thereafter the discharge and seepage ceases, and at subsequent dressings the G.V.S. filling remains adherent to the ulcer and only a few cracks need touching up. The filling remains as a sterile scab under which the ulcer heals.

Pain is relieved almost completely during the first week, and in six weeks ulcers of 10 years' duration have healed without rest in bed. If the patient can rest or will have injections, ligation, or other curative measures for the varicose veins, so much the better, but for the local treatment of indolent ulcer I have found nothing better, and after a two years' trial pass on the information, as the alleviation of pain is quick, marked, and pleasing to the physician and more so to the patient.—I am, etc.,

East Dereham, Norfolk. ERIC PUDDY.

Use and Abuse of Tonsillectomy

SIR,—The correspondence on this subject appears to be developing along the usual lines of violent antagonism and protagonism, exemplified by Mr. T. B. Layton (Aug. 7, p. 310) and Dr. A. M. Tait (Sept. 11, p. 534). May I suggest that, as usual, the truth lies somewhere between the two? There is little doubt that far too many tonsils and adenoids have been removed and probably still are being removed. On the other hand, no general practitioner or specialist who has dealt extensively with these cases will deny the very real benefit, reiterated again and again by the parents and only too obvious in the children, of the removal of truly diseased tissue. Risking accusations of facile optimism, I would suggest that the abuse is lessening and that there are several good reasons for this. Without in any way wishing to restart the guillotine-versus-dissection controversy it may be said that in the heyday of the guillotine "Ts and As" was carried out as a trivial procedure as a sideline either to general practice or to general surgery in many instances.

Since the indications and otherwise for the procedure tend to be skimped in the teaching of a crowded syllabus and are often inadequately dealt with in general textbooks, it followed that however competently the actual technique was carried out there was apt to be a lack of study and appreciation of the basic physiology and pathology of the region and conditions concerned. With crowded clinics, the "snatching" of tonsils, and over-rapid discharge from hospital there has been a natural tendency for the percentage of unnecessary operations to be considerable.

Several important factors are motivating slowly against this tendency. First, the sifting of patients by general practitioners and school medical officers has, even in a limited personal experience, become more accurate. Whether this is due to a general improvement in knowledge of the subject or to belated realization of the misfortune of an unnecessary operation it is hard to say. Secondly, the gross shortage of nursing staff and therefore of beds and theatre facilities tends towards more stringent selection at hospital-clinic level. Thirdly, the general teaching and increasing use of careful surgical dissection enable the tissues to be more leisurely and accurately examined at operation and therefore a better picture of the normal and abnormal formed.

The indications and contraindications for operation are admirably discussed in several small E.N.T. textbooks and several general volumes, and if they are accurately and deliberately applied, with an unhesitating trial of conservative measures in doubtful cases, unnecessary operation should be a rarity. As regards *x*-ray treatment, mentioned by Dr. J. H. Douglas Webster (Sept. 11, p. 534), I would suggest that this useful measure is in danger of disrepute through misapplication. It is the general experience, as exemplified in the literature on both sides of the Atlantic, that simple hypertrophy is *per se* very rarely an indication for operation and will usually resolve with age and conservative treatment. As in the once popular cautery of the tonsil (other than remnants) the mere diminution in the size of the infected organ, whether by scarring or by elimination of still active lymphoid tissue, tends towards the retention of buried sepsis in the crypts, from which it is no longer freely milked by the pharyngeal muscles, and to more serious toxic consequences. The very real value of irradiation in dealing with adenoid remnants and peritubal and submucosal lymphoid tissue in early cases of catarrhal deafness, recurrent otitis media, and otitic barotrauma is probably still insufficiently appreciated.—I am, etc.,

Bath. A. DAUNT BATEMAN.

Volvulus of the Caecum

SIR,—Dr. I. R. Stillman (July 31, p. 255) reported two cases of volvulus of the caecum and referred to Mr. Ralph H. Gardiner's earlier report of three cases (*British Medical Journal*, 1947, **1**, 83). The following are notes on a case which occurred in my practice 16 years ago.

A female patient aged 63 was seen at about 4 p.m. complaining of abdominal pain and vomiting. Her past history was given as influenza and an operation for "cancer" of the right breast 30 years previously. The present attack had started with pain in the upper abdomen accompanied by vomiting at 7 a.m. that morning. The pain was of sudden onset and very severe. The patient had had her bowels opened that morning but had passed no flatus since. Micturition was normal. On examination the patient, who was very thin, was found to have a pulse of 112 and temperature of 98.2° F. (36.8° C.). The abdomen was distended and a tense tumour was found in the right side. A provisional diagnosis of hydrops of the gall-bladder was made.

At 7.30 p.m., under ether anaesthesia, Mr. Harold C. Edwards performed a laparotomy and found a volvulus of the caecum and first 3 in. of the ascending colon, with obstruction by a band of great omentum adherent to peritoneum in the right iliac fossa. The caecum was greatly distended, its wall being the thinness of cigarette paper. Caecostomy was performed, the volvulus undone, and the band divided. A large catheter was tied into the caecum.

Recovery was complicated by abdominal distension, which yielded to treatment by enemas and "pituitrin." Some altered blood was passed by the caecostomy wound on the third day. The bowels were kept open by means of enemata, and aperients were used from the 8th day onwards. The caecostomy opening closed within 12 days. The patient is still alive and well and has had no further abdominal trouble, although she wears a belt for a ventral hernia which developed at the site of the caecostomy wound.

As in the other cases already referred to, the predisposing cause of the volvulus was the presence of a caeco-colic mesentery. The omental band was probably the factor which precipitated the obstruction, the volvulus occurring as the caecum distended.—I am, etc.,

Purley, Surrey. C. E. TAYLOR.

Trilene as an Analgesic

SIR,—The problem of relieving pain in childbirth for patients attended by midwives has been a matter of very considerable concern and has received spasmodic public and medical interest for many years past. The introduction of the new Health Act serves to urge one on in an attempt to improve the lot of these patients in this particular respect, since it is likely that still fewer women will be able to obtain the services of a doctor during childbirth.

Attention has for too long been focused upon the use of gas and air, seemingly to the exclusion of other means of relief. It is no use struggling on to overcome the difficulties of gas and air, since the inherent disadvantages are insuperable. The apparatus is too bulky and heavy for it to be part of a midwife's equipment; even if featherweight cylinders were available their capacity is limited. Midwives for whom a car is provided would be the only ones able to carry the requisite number of cylinders, but each midwife would need at least two complete outfits to ensure every patient receiving this form of analgesia. It is time, therefore, that a much more serious and balanced consideration be made of alternative means.

In "trilene" we have the best of such alternatives. It requires no bulky apparatus, and a 4-oz. bottle is all that need be carried apart from a small, compact inhaler. If trilene is administered through any of the recognized inhalers, and there are several, I believe it to be completely safe in the hands of any midwife, and there is no doubt that the relief it affords by way of analgesia, as distinct from anaesthesia, is equal if not superior to that of gas and air.

I have used trilene in my own practice for three years, the duration of time over which it has been administered to individual patients varying from one to six hours, using the Woodfield-Davies modification of the Freedman inhaler. In hospitals with which I am connected trilene has been used for a very large number of patients, and, although one does not expect 100% success, so far as satisfactory relief of pain is concerned the opinions of these patients show that all but a very small minority received adequate relief. I have not met with a single case in which trilene has been the source of the slightest anxiety, and I believe that properly administered in a sealed inhaler in which only a certain amount can be placed it would be completely safe to allow its use by midwives after very minor instruction.

I would advocate, therefore, that the time has come when the authorities in whose hands the control of such matters lies should take active steps. The means of relief exist. They should be made available to the greatest possible number of patients, and moreover their employment should be obligatory upon the part of midwives, many of whom fail to use the facilities which even at present they can command.—I am, etc.,

London, W.1. F. NEON REYNOLDS.

Paludrine

SIR,—I have read with interest the letter on the subject of "paludrine" from Dr. E. S. Walls (July 24, p. 225), who has been using it on the West African coast near Sierra Leone with rather disappointing results.

Here in Malaya it has been used extensively, and on the whole with satisfactory results, particularly in the treatment of enlarged spleens among children. From this point of view paludrine is the most effective treatment we have so far employed, as well as being the least unpleasant to take. But as a treatment for the reduction of fever it has scarcely ever been used here owing to its frequent unreliability in the dosage originally recommended. For this purpose mepacrine is more effectual, especially when given in a double dose (0.2 g.) thrice daily until the fever declines. But this again is not as reliable for this purpose as quinine in 10-gr. (0.65-g.) doses thrice daily. The effectiveness of quinine appears to vary to some extent according to its solubility, and the bi-hydrochloride (produced by a reputable firm) is still the most reliable in reducing temperature, especially when (though only as a last resort) this is given as an intramuscular injection.

It would appear that Dr. Walls has to deal with a virulent strain of malaria parasite, presumably falciparum, and also perhaps a highly infective vector. Under these circumstances it would be unwise to expect any one measure alone to be completely effective. It is most likely, however, that other preventive measures are also being undertaken. Some of us here in Malaya are now using only two methods, which so far have given satisfaction and are not expensive: prophylactic paludrine, and the periodic indoor spraying of all living quarters with D.D.T. or "gammexane."

Fortunately, or unfortunately from the point of view of testing recent methods of malaria prevention, we have not yet had a really severe malaria season since the Japanese occupation. And that is where Dr. Walls could help us greatly. In the personal prevention of malaria the trouble seems to be that there are few, if any, antimalaria drugs capable of attacking the pre-erythrocytic parasite recently demonstrated in the liver tissue. Enlargement of the liver as well as the spleen is probably an indication of multiple new infections. In some of these severely infected cases satisfactory results have followed treatment with mepacrine (0.1 g.) thrice daily for a week, followed by paludrine (0.1 g.) thrice daily for a week, and then bi-weekly mepacrine (0.1 g.) followed by bi-weekly paludrine on the alternate weeks. We do not know any reason why this should be better than paludrine alone, but it would be of great interest if Dr. Walls would try this alternating treatment and compare it with a similar continuous paludrine course. An alternative course of quinine, iron, and arsenic could also be worth a trial, using quinine hydrochloride if available.

Another valuable remedy which he could employ on those under his close observation is what used to be known as "quino-plasmoquine"—a tablet containing 0.3 g. of quinine with 0.01 g. of "plasmoquine." This, unfortunately, is no longer on the market, but plasmoquine is available under the name of pamaquin. When this combination is used carefully, with alkaline mixture and glucose, the results in several cases have been very satisfactory.—I am, etc.,

Johore Bahru, Malaya. J. NORMAN DUGDALE.

Treatment of Fungus Infections

SIR,—The problems associated with the diagnosis and treatment of fungus infections of the skin are many and varied, and in regard to treatment the attitude of the patient is of very considerable importance. It is my experience that if the treatment advised is to be given a reasonably fair trial it must of necessity be simple of application, time-saving, preferably odourless, and, especially in modern times, have little if any deleterious effects on clothing, bed linen, etc. In this connexion it is frequently the better-educated members of the community who are the prime offenders, and none more so than medical colleagues. The average doctor has little enough time for relaxation, let alone to indulge in some complicated, time-consuming, and frequently messy treatment, and having had some personal experience of this type of thing I must candidly admit to having been a rebel in the past.

While all agree that the ideal therapeutic objective is a radical cure substantiated by microscopic and possibly cultural examinations, it will be generally admitted, especially from the patient's viewpoint, that clinical cure as judged by alleviation of signs and symptoms is eminently satisfactory.

From experience during the past five years I have found phenyl mercuric nitrate to provide the answers to many of my difficulties. In the form of a commercial preparation (ointment and powder) containing 0.05% phenyl mercuric nitrate it has served to procure the maximum number of clinical cures in the minimal space of time. A very widespread outbreak of epidermophytosis in the Durham coalfields was speedily controlled, and absenteeism on account of incapacitating and painful foot rashes was reduced to infinitesimal numbers. Similar results have been noted in regard to members of football clubs in the district.

The routine method, combining prophylaxis and treatment, was as follows. Washing of the feet is followed by thorough drying and the application of ointment, and the insides of the socks or stockings are well dusted with powder. Few measures could be less time-consuming or simpler, and when the Durham miner adopted it after rebelling at the use of foot-baths, malachite green, etc., it spoke volumes for its efficacy and simplicity, because he is a most discriminating individual.

Cases of tinea cruris have been treated with similar results and more recently I have had the opportunity of observing the

effects in a number of cases of tinea capitis who for one or other reason presented epilatory problems, and the results have been encouraging.

In the circumstances I have good reasons to recommend phenyl mercuric nitrate (0.05%) for its high potency, low toxicity, the fact that its action is unimpaired by the presence of body disintegration products, and it admirably fulfils the requirements which I have initially outlined in this letter.—I am, etc.,

Darlington. W. GILLIES ANNAN.

Dermatomyositis

SIR,—Dr. J. MacD. Holmes (Sept. 11, p. 511) gives an excellent picture of acute dermatomyositis with a probable aetiological factor in the *Str. viridans* cultured from a muscle biopsy. Unfortunately neither his claim to be the first to isolate an organism from muscle biopsy nor his hopes that modern therapy will greatly influence the cure rate can be maintained.

Dermatomyositis was first described by Wagner[1] in 1863, and cases had been reported by Potain[2] and by Marchand[3] before the syndrome was recognized by Wagner, Hepp, and Unverricht independently in 1887. Organisms have been found in many cases, dating back to Fraenkel[4] in 1894, who found a streptococcus in two cases. Fox[5] in 1913 claimed to have isolated a specific organism from blood culture and named it *Micrococcus polymyositidis*. O'Leary and Waisman[6] in 1940 reviewed 40 cases seen at the Mayo Clinic and reported streptococci in five muscle cultures, diphtheroids in three, and staphylococci in one. Many other agencies have been incriminated, including carcinoma (Stertz,[7] Pick[8]) and thyrotoxicosis (Heuer[9]).

In view of these reports and many others not quoted for lack of space it appears that Dr. Holmes provides only one more to a long list of primary causes giving rise to dermatomyositis. Treatment by penicillin or sulphonamides is likely to be effective only in cases where a sensitive primary agent is present, and unfortunately this is not commonly true.

Most of the misconceptions about dermatomyositis are due to the few cases seen by any one physician and consequent generalization upon inadequate data. An article based on the study of reports on 188 cases is in preparation which it is hoped will cast some light on this controversial subject. It is at least hoped that this letter will stimulate a search for a primary agent, rather than to subject every victim of this distressing complaint to long courses of penicillin and sulphonamides, which will usually be ineffective and add to the patient's distress.—I am, etc.,

London, W.C.1. ERIC SMITH.

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Artificial Insemination

SIR,—In the *Journal* of Sept. 11 (p. 523) you devote an annotation to the report on artificial insemination just issued by the Commission appointed by the Archbishop of Canterbury. One of the findings of the Commission runs as follows: "In our view, the evils necessarily involved in artificial insemination (donor) are so grave that early consideration should be given to the framing of legislation to make the practice *a criminal offence*" (my italics).

This suggestion can only be described as a monstrous impertinence. I do not question the right of any Church to lay down rules for the conduct of its own members. If any person wishes to obtain what he considers to be the advantages that adherence to any particular faith brings him, he must be prepared to conform to the standards of behaviour demanded by that faith or to suffer excommunication or such other penalty as is imposed by the Church for lack of conformity. He cannot expect to eat his cake and have it. I have, therefore, no sympathy with Church members who, for example, complain because, since they are divorced persons, the Church refuses to give its blessing to their remarriage. (The Church does not, up to the present, attempt to prevent them being married by a civil ceremony.)

But that any Church should attempt to compel citizens who do *not* belong to its membership or acknowledge its authority to conform to its standards of behaviour is intolerable in a free community. We inveigh against the tyranny of totalitarian States, Nazi, Fascist, or Communist. The tyranny that the Churches would exercise, if they had the power, would be no less totalitarian. It is for all thinking men and women to be ever on the watch that the Churches do not obtain such power.—I am, etc.,

London, W.1. NORMAN HAIRE.

Wives of Service Medical Officers

SIR,—I was more than interested to read Lieut. D. R. Morgan's concise account (Sept. 4, p. 500) of his difficulty in attempting to get his wife out to the Far East. As a fellow sufferer, though in a country more favourably placed than he, I can sympathize. I too have met with the hard official mind which conspires against the well-being of married doctors who through no fault of their own happen to be under 25. In B.A.O.R., even when married quarters are available and one offers to pay the passage of one's wife and family, yet one's application is refused. Because one was born too late or qualified too soon one is denied the stability possible when two married people live together. No matter that British civilians over here may bring their families out to them, and likewise any private soldier over 21 may live here with his wife. Resident families can invite their mothers, fathers, sisters, and brothers for a holiday in Germany. Yet there is some "reason" why a young doctor may not have a quarter for his wife.

Though one could in theory qualify and practise the delicate art of medicine at the age of 21, yet the Services do not consider a doctor old enough to live with his wife until he has achieved another five years to his credit. For a country striving for security and stability in future years how farcical an attitude its leaders take towards their younger generation! How can a family begin on a stable emotional footing when they are separated for periods even so seemingly short as six months? During time of war it was often necessary for husbands in the Services to be away from their wives and families for long periods of time. The existence of the nation came before consideration of the welfare of the individual family units. Now in time of relative peace the future of the nation depends on the stability in every person's life and home. I would end by expressing my agreement with Lieut. Morgan that when separation is not necessary it is indeed criminal cruelty when enforced for no beneficial purpose. Certainly no amount of official explanation will ever make it otherwise.—I am, etc.,

J. H. ATPED,
Lieutenant, R.A.M.C.

Fitness to Drive

SIR,—Despite all the efforts of various authorities and experts to reduce the casualties on the roads the figures are still appalling. Studies have been made by engineers, road surveyors, and other technicians. Propaganda, most of it excellent, is carried out to influence both the adult and child population, and still the terrible toll of the roads goes on. In the last analysis the human factor is the important nucleus of the problem. At present any car driver fills a form stating he is free from certain disabilities and is fit to drive. After some serious accident the driver, when found to be unfit to drive, may or may not receive some punishment for his wilful misinformation. This procedure of delayed closing of the stable doors is of little value except to satisfy punitive members of the bench. Meanwhile doctors have difficulty in finding hospital beds for other cases.

It would appear desirable that the claim of a would-be driver, that he is fit to be in charge of a lethal weapon, should be substantiated by a medical board before the accidents happen. It is of course obvious that at the present time medical men have sufficient to cope with, and a further duty of certification of this nature might be impractical at present. The matter, however, is one which merits serious consideration. A second

point arises, which is the immediate purpose of this letter. I have frequently examined men who are obviously a potential menace as drivers—for example, chronic anxiety states with complete lack of self-confidence, individuals who suffer from frequent "black-outs," and so on. Many of these are professional lorry drivers who inform me and my colleagues that they would like to give up this job but cannot afford to do so. This week I saw a man with post-traumatic personality changes and deterioration following fractured skull and subarachnoid haemorrhage who recently became a lorry driver in the hope that this would "help his nerves."

Discussion with nearly a score of my colleagues who have had similar experiences resulted in agreement on two points: one, that doctors examining a patient for various purposes, such as medical boards of different kinds, have no right or duty to inform any authority of their opinion on this matter, and that doctors in private practice would be violating professional confidence if they took any action from a sense of public duty; two, that it would be a proper procedure to write to you to learn the views of the profession generally. In addition, it was suggested by some that perhaps this is a matter on which the Ethical Committee might well provide some guidance.—I am, etc.,

London, W.1. S. SHARMAN.

Shortage of Nurses

SIR,—In his letter (Sept. 4, p. 500) Dr. N. Strang states that the numbers of nurses in employment in this country are dwindling. Nothing could be further from the truth. It is estimated that there are some 29,000 more nurses and midwives in employment in Great Britain now than in 1938, and, while no strictly comparable figure for 1938 and 1948 for hospitals only is available, all the evidence seems to show that hospitals have at least kept pace with the general increase and probably done rather better than that. In March, 1948, the number of nurses and midwives employed in hospitals in Great Britain was 142,534, and the number in the public health and domiciliary services brought this to a grand total of 168,840, out of an estimated total of 189,000 nurses and midwives in all forms of employment. The increase in the numbers employed in hospitals only in the last nine months is 4,900, and the increase in the public health and domiciliary services together with the hospitals 6,100.

As regards student nurses and pupil midwives the numbers have risen from 43,300 to 52,079 if 1938 is compared with 1948, an increase of about 20%.

It is true that many more nurses and midwives are needed to meet the expanded demands for their services and to enable available beds to be opened, but it is important not to discourage recruitment by suggesting that the numbers of nurses and midwives are declining.—I am, etc.,

Ministry of Labour and National Service. L. H. HORNSBY, Director of Public Relations.

POINTS FROM LETTERS

Rutger's 612

SIR RICKARD CHRISTOPHERS, Cambridge, writes: The following information given in a letter from the Carbide and Carbon Chemical Corporation, New York, regarding the mosquito repellent Rutger's 612 may be of interest to some readers. This substance, under the trade name of "insect repellent 612," would appear from the letter to be solely manufactured and marketed by the above-mentioned firm and not, as stated by me in my paper on mosquito repellents in Vol. 45 of the *Journal of Hygiene*, by the National Carbon Company, who are no longer concerned in this respect. My statement based on information available at the time that Rutger's 612 was not a pure substance is also objected to, as it is stated to be better than 99% ethylhexanediol, probably the purest heavy tonnage industrial diol being marketed to-day. Also there now seems to be no difficulty about short supply, the letter stating that the productive capacity of the firm is many times the current demand for this material. Lastly, the firm's letter states that Rutger's 612 is not, as was stated, a paint and plastic solvent and that it does not dissolve or soften rayon, nylon, and certain other plastics mentioned or nail lacquer. Rutger's 612 is a very effective insect repellent and has certain advantages which make it preferred by some to dimethyl phthalate. It is satisfactory to know that it is now apparently readily available on the market, unless there is any restriction on its import to this country.

Obituary

J. H. WILLETT, M.D., F.R.C.O.G.

We are indebted to Mr. Percy Malpas for this appreciation of the late Dr. J. H. Willett.

The death of Dr. Willett, of Liverpool, on July 13 at the age of 73 years must have stirred many memories in the minds of all who have been concerned with the development of English obstetrics and gynaecology during the last forty years, particularly the many in the North of England who were glad to have known him. Not that in the popular sense he was celebrated, though his own practice of course was big enough, but in some ways he was a unique figure. Some men's departures leave a sense of sudden loss because of their very activity, we feel perturbed that so much energy is suddenly at an end. The loss we feel for Willett's death is rather different. He was a quiet man, but this very quietness based on the assurance of a long and hard experience gave those who knew him that most important of gifts, a feeling of continuity with a living tradition.

James Hayward Willett graduated in the Victoria University in 1897, and came on the staff of the Women's Hospital in 1902 and of the Liverpool Maternity Hospital in 1909, a year after he had proceeded M.D. He served both hospitals until his retirement from active practice in 1935. His active life thus spanned the change Munro Kerr describes in his Fletcher Shaw Memorial Lecture. How much he linked the past with the present is shown by the date of the year he joined the North of England Obstetrical and Gynaecological Society, 1901, becoming its president in 1914 at the early age of 39.

All his life Willett was hampered by very poor eyesight, and in compensation he developed an uncanny sense of touch. To see him diagnose an obstructed labour and do, for instance, a necessary version was a great experience, though towards the end assisting him at abdominal sections proved an exciting experience. All the same, his judgment was so good and his hands so gentle that he could get away successfully with his sight-hampered technique, and although he was seemingly overshadowed by such strong contemporaries as Briggs, Gemmell, Blair Bell, and Leith Murray his contribution to his specialty was in some ways as great as theirs. Essentially this contribution was the strong influence he exercised on his juniors. A saying of his illustrates this well. To one who was criticizing the management of some case or other, a management in the junior's eyes very much at fault, Willett would say, "Were you there?" "No, Sir." "Then you can't judge if you were not there; you can't tell what he may have been up against."

A life as quiet as Willett's does not much lend itself to posthumous anecdote, though the incidents which occurred in the clash between him and his somewhat irascible chief and teacher, Henry Briggs, can well be imagined. Whenever the history of the Liverpool school of obstetrics is recalled Willett's name deserves a high place. There are many such men in English medicine—they make no great stir, their publications are few, but so often they are the men who transmit much of the tradition.

Dr. CHRISTOPHER RICHARD KEMPSTER died suddenly on Sept. 7 at his home in London. Born in London in November, 1869, Kempster was educated at Cavendish College, Cambridge, and was a student at three London hospitals: the Westminster, King's College, and the London. He qualified in 1896, and early in his career he took up the study of *x* rays and electrotherapeutics. He had a special interest in the use of *x* rays in the treatment of skin diseases and was the physician in charge of the *x*-ray and electrotherapeutic department of St. John's Hospital for Skin Diseases. He also worked at the Royal Cancer Hospital, and he was a regular contributor to the medical press on subjects connected with his special field. During the first world war he acted as a civil surgeon to the War Office, as a staff captain of the City of London National Guard, and he was also the medical officer in charge of radiology at a

number of military hospitals. He lived in London throughout the recent war and continued to serve the *x*-ray departments of the Hampstead General Hospital and the Manor House Orthopaedic Hospital, Golders Green. Dr. Kempster took a great interest in the City of London and was a very senior liveryman of the Society of Apothecaries. He was a great traveller and a very good sailor, always a popular and prominent figure in shipboard life. He was very happy in his family life, as his wife shared his interests and was always his close companion and as fond of the sea as he was. Kempster loved dining out and was a good raconteur, though bothered in recent years by the fact that his hearing was not as perfect as it had been. He will be long remembered by his colleagues and friends and by his patients, in whom he inspired the greatest confidence and in whose service he never spared himself.—R. J. B.

Miss EUGÉNIE LEESON WILLIS died after a long illness on Sept. 12 at the early age of 38. She received her medical education at Cambridge and at the Royal Free Hospital, obtaining the Cambridge M.B. in 1937, after qualifying for the Conjoint Diploma in 1935. After a period as house-surgeon at her own medical school, and after other resident appointments in the South of England, Miss Willis took the English F.R.C.S. in 1939, and shortly afterwards was appointed resident surgical officer at the Oldham Royal Infirmary. From 1942 she devoted herself entirely to orthopaedic surgery, and during her short career as a specialist in this branch she did very valuable work, mainly at the Manchester Royal Infirmary. As chief assistant to the orthopaedic department there from 1942–5 she had to bear a very heavy burden in the routine care of hundreds of battle casualties which were admitted at a time when the hospital staff was severely depleted. Shortly after the end of the war she was able to turn her attention to a wider sphere of work as visiting orthopaedic surgeon to the municipal hospitals at Oldham and as orthopaedic registrar to the Manchester Babies' Hospital. Miss Willis also served the Manchester University as a teacher in the departments of anatomy and orthopaedic surgery, but what promised to be a busy and active career was gravely threatened in its earliest days by the development of the chronic disease from which she ultimately died. Her courage in facing her disability, and her determination to work despite her grave affliction, earned the admiration and respect of her many friends, to whom her memory will always be vivid.

Dr. JOHN ALEXANDER WATT, who retired from Derby about two years ago, died on Sept. 13 at West Runton, Norfolk. Over a period of about forty-five years he led an active life which included public health work, war service, and private practice. He will be remembered chiefly, however, for his services to the British Medical Association and as a public servant on the Derbyshire County Council. In 1899 he graduated M.B., Ch.B. at Aberdeen, and in 1909 took the D.P.H. His first appointment was in Lanarkshire and his next in Ilkeston, Derbyshire. Dr. Watt became tuberculosis officer and assistant medical officer of health for Derbyshire in 1913, and continued there until 1925 apart from the war period, when he served as a temporary captain in the R.A.M.C. with a field ambulance in France. In 1925 he entered private practice, and for twenty years held the part-time post of medical officer of health for Repton rural district. Elected a member of the British Medical Association in 1899, Dr. Watt was always a regular attendant at local meetings. His chief work for the Association, however, began in 1927 as secretary to the Derbyshire Division for a period of five years, which was followed by the chairmanship in 1933–4. Next year he was elected president of the Derbyshire Branch, and his loyalty to the Association was exemplified by the fact that after this honour he took over the secretaryship of the Branch from 1938 until 1946, when he retired from the district. He was representative of the Division at seven annual meetings between 1922 and 1939. This record speaks for itself, but the profession locally would probably pay chief tribute to his excellent work as secretary to the local medical war committee at a time when his health was beginning to suffer. He showed wisdom, experience, and a sound business talent which enabled a committee of overworked doctors to feel confident that their affairs were in safe hands. Dr. Watt served on both the borough and the county local medical and panel committees. But he did not neglect the scientific side of his work, and was at one time president of the Derby Medical Society. In public work, outside his own profession, he was chairman of the Littleover parish council and a member of the Derbyshire County Council. In 1932 he was made a justice of the peace. He was a man of strong views, prepared to back them with good arguments, but if occasionally he did not carry the day he came to the next committee quite unruffled.

Medical Notes in Parliament

Parliament was prorogued on Sept. 13. In the Speech from the Throne which reviewed the Session, note was taken of the passage of the Act to abolish the Poor Law and to make improved provision for children deprived of a normal home life. There had also been discharged "the great task, which it has fallen to this Parliament to undertake, of giving legislative effect to a comprehensive scheme of social security. This scheme, which has now been brought into operation, will promote the health and well-being of My people, provide a substantial resource in any periods of unavoidable unemployment, and relieve those anxieties which, in the past, so often attended sickness, disability, or old age."

On the following day, Sept. 14, a new Session was opened by the King. His Speech explained that Parliament was summoned for further consideration of the Bill to amend the Parliament Act, and that it was not proposed to bring forward any other business in the present Session. Debates followed in both Houses on the Address.

Road Safety

Opening a discussion on Sept. 15 Colonel HAMILTON said that during the past 22 years there had been killed on the roads of the United Kingdom about 144,800 people, a large proportion of them children. Last year had been a better year than many, but even so, on the average, 13 or more people were killed each day. An accident depended almost entirely on the speed at which the motorist travelled. Remarkable results had been achieved in some places where care had been taken about the moderation of speed. Propaganda was at present directed to keeping the victim out of the way of the lethal weapon instead of inducing the man who wielded the weapon to handle it more carefully.

Mr. CALLAGHAN, in reply, said the 30-mile speed limit was not a licence to drive at that pace on all occasions. The proper speed depended on the traffic and the circumstances. The way to avoid accidents was to have a free flow of traffic moving at a constant speed. Beside speed factors causing accidents were the condition of the vehicle, carelessness and selfishness of road users, and the construction of the roads. He was planning to pick out some vital aspect of road safety so that attention could be concentrated on that nationally or locally during a particular week.

Medico-Legal

PENSION FOR DEATH FROM CANCER

[FROM OUR MEDICO-LEGAL CORRESPONDENT]

In recent pensions cases the view has prevailed that cancer is in the ordinary way not caused or aggravated by war service. A claimant may still, however, show special circumstances, and then the presumption in his favour which the law gives will operate and the Minister of Pensions has the burden of showing that the disease was not caused or aggravated by war service.

A gunner joined the Army in 1941 and was discharged in December, 1944, with cancer of the colon. Early in 1946 he claimed that this was aggravated by war service because it was not properly treated. The pensions appeal tribunal rejected his claim, and in August of the same year he died. His widow claimed a pension in respect of his death, and the tribunal rejected her claim also. She appealed to the High Court, and Mr. Justice Denning remarked[1] that delay in treatment was a special circumstance in which cancer could be aggravated by war service. The gunner had had gastric symptoms for a long time during his service, but the disease had not been diagnosed or treated by any military doctor. During a brief compassionate leave in August, 1944, he had had severe abdominal pains and vomiting, and a civilian doctor had sent him to hospital, where an emergency operation was performed. The issue became a question of fact. Had he reported sick frequently with stomach trouble, as he had said? The Minister said that he had reported occasionally with ear and dental trouble, but there was no record that he had ever reported with stomach trouble except on one occasion, when he had received treatment as

[1] *The Times*, June 1, 1948: *Lee* v. Minister of Pensions.

skilled as any that a civilian doctor would have given him. On the contrary, the gunner's story was confirmed by his history taken down at hospital, by his captain, and by a comrade. His widow said that he had come home once for two days, being absent without leave, and had said that he was sick and tired of going to the Army doctors. He had been punished for that offence by being made to dig a field, which in his own words had nearly killed him.

The judge saw no reason for taking so strong an adverse view as to disbelieve all these witnesses. It could not be said that the man's account was proved beyond reasonable doubt to be wrong. Records were not always complete; some might be lost or mislaid. The presumption in the gunner's favour was not rebutted. A specialist's opinion should have been taken long before August, 1944, and if it had been taken an earlier diagnosis might have been made and treatment given. His widow was therefore awarded a pension.

Questions in the House

A fortnight after the hearing of this case Mr. LIPSON, in the House of Commons on June 15, had asked the Minister of Pensions how many applications for a pension had been refused in respect of ex-Servicemen suffering from cancer. He also asked the Minister to arrange for all these cases to be automatically reviewed in the light of the recent judicial decision.

Mr. G. BUCHANAN said that the number of applications from ex-Servicemen in respect of cancer which had been rejected was estimated to be about 5,500. Pensions had been granted in respect of cancer in about 1,000 cases. Mr. Buchanan stated, however, that so long as he was bound by medical evidence and legal decisions he must rule out most applications for a pension in cases of cancer.

Mr. CHETWYND on June 8 had previously invited the Minister of Pensions to make a statement on applications for pension in respect of cancer, in view of Mr. Justice Denning's judgment in the case of *Lee* v. *Minister of Pensions*.

Mr. BUCHANAN, in reply, noted that the appeal was allowed primarily on the grounds that an earlier diagnosis of cancer and operative treatment might have prolonged life. The reasons given by the learned judge for allowing Mrs. Lee's appeal did not constitute any new approach to pension entitlement in cancer cases. Although, with very rare exceptions, cancer was authoritatively held to be not caused by war service, rejection of application for pension was not automatic. All cases were examined sympathetically to see whether there was delay in diagnosis or treatment due to war service which might have hastened death. Where there had been such delay his Department did not hesitate to grant a pension.

The Services

The Efficiency Decoration has been conferred upon Colonel H. V. Leigh, O.B.E., R.A.M.C., T.A.

The Legion of Merit, Degree of Officer, has been conferred upon Colonel Frank Sheppard Gillespie, late R.A.M.C., by the President of the U.S.A. in recognition of distinguished services in the cause of the Allies.

The Decoration of Officer of the Order of Leopold II with Palm, Croix de Guerre 1940 with Palm, has been conferred upon Major Frederick Alexander Edwards, R.A.M.C., by the Prince Regent of Belgium in recognition of distinguished services in the cause of the Allies.

Universities and Colleges

UNIVERSITY OF ABERDEEN

Harold Williams Fullerton, M.D., M.R.C.P., Lecturer in Medicine in the University of Aberdeen, has been appointed Regius Professor of Medicine in succession to Professor Robert Stevenson Aitken, M.D., F.R.C.P., who has retired.

UNIVERSITY OF SHEFFIELD

The Right Honourable Lord Horder, G.C.V.O., M.D., will deliver the opening sessional address of the Faculty of Medicine, University of Sheffield, in the Firth Hall of the University on Wednesday, Oct. 13, at 3 p.m. His subject will be "The Vocation of Medicine."

Medical News

Informal Dinner

At an informal dinner on Sept. 14 the President and Council of the British Medical Association entertained the delegates to the British Commonwealth Medical Council. Sir Lionel Whitby, who presided, and Dr. H. Guy Dain both gave a warm welcome to the guests and outlined the aims and objects of the Commonwealth Medical Council. Dr. A. J. Collins (Australia) gave some account of the work which had been done by the General Assembly of the World Medical Association at Geneva. Dr. J. F. C. Anderson (Canada) said that the medical profession in Canada was most anxious to participate in the work of the proposed Commonwealth Council. Dr. A. J. Orenstein (South Africa) took the same view and referred to the many loyal friends of the B.M.A. in South Africa. Dr. P. Moran (Eire) delighted his hearers with a brief discourse on many things. Dr. C. F. Fernando (Ceylon) and Dr. S. C. Sen (India) referred to the problems that would have to be faced in the future and Dr. N. Ahmed (Pakistan) mentioned regretfully the death of Mr. Jinnah and the current disturbances in India and Pakistan. Dr. T. D. M. Stout (New Zealand) described some of the experiments with nation-wide social security schemes in New Zealand and welcomed particularly the formation of the Empire Medical Advisory Bureau, a point which was also taken up by Dr. J. H. G. Robertson (Southern Rhodesia). Dr. Charles Hill recalled that the Empire Medical Advisory Bureau and the British Commonwealth Medical Council both owed their inception to Sir Hugh Lett. Sir Hugh Lett described how both ideas had arisen in wartime and how during the most difficult period people in Britain were sustained and encouraged by the unwavering support of the Commonwealth. Finally an enjoyable evening was brought to a close with speeches from Dr. T. C. Routley (Canada), who echoed Dr. Anderson in promising the support of the Canadian Medical Association for the Commonwealth Council, and from Dr. Alfred Cox.

Commonwealth Travelling Professorship

Mr. Arthur Sims, of New Zealand, endowed a Commonwealth Travelling Professorship under the aegis of the Royal College of Surgeons of England, the Royal College of Physicians of London, the Royal Australasian College of Physicians, and the Royal Australasian College of Surgeons. The endowment provides for the appointment annually of a Travelling Professor to visit England, Australia, New Zealand, South Africa, and Canada for the purpose of assisting in the advancement of medical science by either lecturing, teaching, investigating, or engaging in research. The Royal College of Physicians has nominated Professor G. W. Pickering, Professor of Medicine in the University of London, at St. Mary's Hospital, as Commonwealth Travelling Professor for 1949. He will visit Australia and New Zealand in the early part of that year.

Social Workers in Mental Health

Some aspects of the work of social workers in the mental health service are to be considered by a special committee which has been set up by the Minister of Health. Under the title of the Committee on Social Workers in the Mental Health Service the committee is "to consider and make recommendations upon questions arising in regard to the supply and demand, retaining, and qualifications of social workers in the mental health service. The committee is to present an interim report on these questions in relation to psychiatric social workers." The chairman of the Committee is Professor J. M. Mackintosh, Dean of the London School of Hygiene and Tropical Medicine, London University. The other medical members are: Dr. J. B. S. Lewis, St. Bernard's Mental Hospital, Middlesex; Dr. R. M. Bates, Royal Eastern Counties Institution for the Mentally Defective; Dr. R. H. Parry, medical officer of health, Bristol; and Dr. Kenneth Soddy, medical director of the National Association for Mental Health.

London Campaign against Diphtheria

The London County Council is intensifying its campaign against diphtheria. Since the Ministry of Health started publicity in 1940 advocating immunization striking results have been seen in London, the number of cases reported having dropped from 1,844 in 1940 to 936 in 1947, and deaths from 67 to 22. It is estimated that 75% of all London children up to the age of 13 are now immunized; the aim is to reach 100%.

Professor J. McMichael

Professor J. McMichael, M.D., F.R.C.P.Ed., is leaving for America on Sept. 25. He is to be guest lecturer at meetings of the California Heart Association and is also giving the Musser Lecture in Tulane University, New Orleans, and the Thayer Lectures, Johns Hopkins Medical School, Baltimore. He returns to this country on Dec. 7.

Wills

Dr. James Frederick Digby Willoughby, of Southwell, Notts., left £10,261. Dr. Maurice Waugh Renton, of Dartford, Kent, left £14,411.

COMING EVENTS

King's College Hospital Medical School

The opening of the 119th session of King's College Hospital Medical School (University of London) for 1948–9 will take place at the Medical School, Denmark Hill, London, S.E., on Friday, Oct. 1, at 3 p.m.

Royal Free Hospital School of Medicine

The inaugural address for the 1948–9 session of the Royal Free Hospital School of Medicine will be delivered by Mr. L. E. C. Norbury in the Beveridge Hall, Senate House, University of London, Malet Street, W.C., on Friday, Oct. 1, at 3 p.m. His subject is "The Importance of Team Work, with Special Reference to Hospital Life." Before the address Mrs. Norbury will present prizes and certificates.

Westminster Medical School

The inaugural address will be given by Dr. W. T. S. Stallybrass, Vice-Chancellor of the University of Oxford, at Westminster Medical School (17, Horseferry Road, London, S.W.) on Monday, Oct. 4, at 3 p.m.

International Scientific Film Congress

The second congress of the International Scientific Film Association will be held in London from Oct. 4 to 11. It is being convened by the Scientific Film Association of Great Britain (34, Soho Square, London, W.1), with the help of the British Film Institute. In connexion with the congress an exhibition of illustrations and photographic material will be held at the Royal Society of Medicine (1, Wimpole Street, London, W.1) from Oct. 6 to 11. The exhibition is designed to interest medical teachers.

Charing Cross Hospital Medical School

The annual dinner of past and present students of Charing Cross Hospital Medical School will be held at the Savoy Hotel (Embankment entrance), on Thursday, Oct. 7, at 7 for 7.30 p.m. The charge for dinner, exclusive of wines, is one guinea. There will be a dance in the Refectory of the Medical School following the dinner. The prize-giving and inaugural address, by Field Marshal the Rt. Hon. Viscount Montgomery, K.G., G.C.B., D.S.O., will take place in the Council Room of the Hospital on the same day at 4 p.m. The Medical School will be open for inspection from 2 to 3.30 p.m.

Postgraduate Lectures in Ophthalmology

A series of lectures in ophthalmology will be given in the Department of Ophthalmology of the University of Glasgow on Wednesday, Oct. 6, 13, 20, and 27, at 8 p.m. Tea will be served after each paper and a discussion will follow. The meetings are open to all medical practitioners and senior students interested in the subject. Details will be published in the diary column of the *Journal* week by week.

North-West Metropolitan Regional Tuberculosis Society

A meeting of the North-West Metropolitan Regional Tuberculosis Society will be held at Colindale Hospital, London, N.W., on Wednesday, Oct. 6, at 4.30 p.m., when there will be a discussion on "The Development of the Tuberculosis Service in the North-West Metropolitan Region," to be opened by Dr. H. M. C. Macaulay, Senior Administrative Medical Officer of the region. All interested practitioners in the region are invited to attend and contribute to the discussion.

Welsh National School of Medicine

The opening sessional address of the Welsh National School of Medicine will be given in the school on Tuesday, Oct. 5, by Professor E. D. Adrian, O.M., F.R.S., professor of physiology in the University of Cambridge, on "The Aims of Medicine."

Royal Institute of Public Health and Hygiene

A series of lectures will be given at the Royal Institute of Public Health and Hygiene, 28, Portland Place, London, W., on Wednesdays, at 3.30 p.m., from Oct. 13 to Nov. 24. Details will be published in the diary column week by week. Admission to the lectures is free, without ticket.

Middlesex Hospital Medical School

The annual dinner of the Middlesex Hospital Medical School will be held at the Savoy Hotel (Victoria Embankment entrance), London, W.C., on Friday, Oct. 1, at 7 for 7.30 p.m.

Royal College of Obstetricians and Gynaecologists

The Royal College of Obstetricians and Gynaecologists (58, Queen Anne Street, London, W.1), has arranged a dinner to be held at the Dorchester Hotel, Park Lane, London, W., on Friday, Oct. 1, at 7 for 7.30 p.m.

Old Students' Annual Dinner

The Westminster Hospital Old Students' annual dinner will be held at the Savoy Hotel, Strand, W.C., on Saturday, Oct. 2, at 7.15 for 7.45 p.m. Sir Arnold Stott, K.B.E., F.R.C.P., will be in the chair.

Cambridge Graduates Medical Club

The annual general meeting and dinner of the Cambridge Graduates Medical Club for 1948 will be held at Downing College, Cambridge, on Wednesday, Oct. 6, at 7 for 7.30 p.m. The cost of the dinner is 30s. inclusive of wines and gratuities. Those wishing to attend should send their cheque to the Cambridge Secretary, Dr. Windsor H. Lewis, 56, Trumpington Street, Cambridge.

SOCIETIES AND LECTURES

Tuesday

EUGENICS SOCIETY.—At Rooms of Royal Society, Burlington House, Piccadilly, W., Sept. 28, 5.30 p.m. *"The Eugenics of the Utopians: the Utopia of the Eugenists,"* by Mr. Paul Bloomfield.

Wednesday

INSTITUTE OF LARYNGOLOGY AND OTOLOGY, 330, Gray's Inn Road, London, W.C., Sept. 29, 10 a.m. *"The Relationship of Dental Disease to Diseases of the Throat, Nose, and Ear"* (illustrated by lantern slides), by Mr. A. C. Deverell.

Thursday

ROYAL SANITARY INSTITUTE.—At Bebington Council Chamber, Sept. 30, 2.30 p.m. *"Environmental and Personal Problems in Relation to Public Health,"* by Mr. E. V. Crapper.

Friday

ROYAL COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS.—At Barnes Theatre, Royal Society of Medicine, 1, Wimpole Street, W., Oct. 1, 2.15 p.m. *"On Certain Functioning Tumours of the Ovary,"* Biennial Anglo-American Lecture by Dr. Emil Novak.

SELLY OAK HOSPITAL MEDICAL SOCIETY, BIRMINGHAM.—Oct. 1, 8 p.m. *"Recent Advances in Carcinoma of the Rectum,"* by Mr. A. Lawrence Abel.

Saturday

ROYAL COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS. 58, Queen Anne Street, London, W., Oct. 2, 10 a.m. *"Rhesus Factor, Isoimmunization, and Haemolytic Disease of the Newborn,"* William Blair Bell Memorial Lecture by Professor Newell Willard Philpott (Montreal).

BRITISH ASSOCIATION OF ALLERGISTS.—At Lecture Hall, Department of Pathology, University of Cambridge (in Tennis Court Road), Oct. 2, 11 a.m. *"The Allergic Child."* Opening paper by Dr. G. F. Walker.

BIRTHS, MARRIAGES, AND DEATHS

BIRTHS

Barkworth.—On Sept. 13, 1948, at Nuffield House, Guy's Hospital, London, S.E., to Beryl (née Wright), wife of Dr. F. B. S. Barkworth, of 12a, Carlisle Road, Eastbourne, a second son—John.

Donald.—On Sept. 3, 1948, to Mary (née Graham), M.B., B.S., wife of Patrick C. Donald, L.D.S., a daughter—Patricia Mary.

Kropacz.—On Sept. 10, 1948, at Westgate, Belton, Doncaster, to Amy Kropacz (née Mooney), L.R.C.P.&S.Ed., L.R.F.P.S.Glas., wife of Michal Kropacz, a son.

New.—On Sept. 16, 1948, to Mary (née Nelson), wife of Dr. P. F. J. New, a daughter—Stephanie Erica.

Punt.—On Sept. 14, 1948, at Queen Charlotte's Hospital, to Gwendoline (née Moore), the wife of Norman A. Punt, F.R.C.S.Ed., D.L.O., a son—Jonathan Arthur Gilbert.

Whitney.—On Sept. 9, 1948, at the Lady Forrester Hospital, Broseley, Shropshire, to Freda (née Bannister), wife of Dr. R. U. Whitney, a son—Charles Bannister.

DEATHS

Daniel.—On Sept. 18, 1948, at 25, Lauderdale Drive, Petersham, Surrey, Alfred Wilson Daniel, M.D., aged 75.

Harvey.—On Sept. 11, 1948, at 56, Garscube Terrace, Edinburgh, William Frederick Harvey, C.I.E., M.B., C.M., F.R.C.P.Ed., D.P.H., F.R.S.Ed., Lieutenant-Colonel, I.M.S. retired, aged 75.

Hinge.—On Sept. 15, 1948, at 11, Wood Street, Woburn Sands, Bedfordshire, Harry Alexander Hinge, C.B., C.M.G., D.S.O., M.R.C.S., L.R.C.P., Major-General R.A.M.C., retired, aged 79.

Slome.—On Sept. 12, 1948, at 79, Clifton Court, London, N.W., Irving Somerset Slome, M.Sc., M.B., B.S.

Taylor.—On Sept. 12, 1948, at Ashgate Cottage, Chesterfield, Derbyshire, Vivian Johnson Morcom Taylor, M.Ch., F.R.C.S.Ed., aged 44.

Watt.—On Sept. 13, 1948, John Alexander Watt, M.B., Ch.B., D.P.H.Aberd.

No. 36

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Sept. 4.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1948					1947 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	29	3	19		—	36	2	34	3	1
Deaths		—	—				—	1		
Diphtheria	105	7	46		2	145	18	42	8	7
Deaths	2	—	1	—	—	2	—	—	—	—
Dysentery	64	4	41		1	64	9	23	—	1
Deaths				1	—				—	—
Encephalitis lethargica, acute	1	—	1		—	3	—	—	—	—
Deaths		—					—			
Erysipelas			27		1			36	4	—
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years									96	
Deaths	28	—	5	4	1	62	3	26	5	5
Measles*	2,962	120	19		48	1,447	61	41	135	1
Deaths†			—	—	—	—	—	—	5	—
Ophthalmia neonatorum	42	3	7		—	53	2	7	—	—
Deaths										
Paratyphoid fever	11	—	1 (B)	—	—	29	2	1 (B)	—	—
Deaths	1	—	—		—	1	—	—	—	—
Pneumonia, influenzal	246	9	4		—	215	11	5	—	2
Deaths (from influenza)‡	—	—	1	—	—	2	—	—	1	1
Pneumonia, primary			115					96	15	
Deaths	104	18		2	2		17		7	8
Polio-encephalitis, acute	3	—				46	6			
Deaths							1			
Poliomyelitis, acute	70	7	5		—	662	69	174	8	13
Deaths§	2	—					2			
Puerperal fever		—	18		—		—	12		—
Deaths										
Puerperal pyrexia‖	94	2	11		—	112	7	8	1	1
Deaths		—					—			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	734	34	175		37	540	44	113	12	21
Deaths†			—	—	—	—	—	—	—	—
Smallpox	—	—	—		—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	9	—	24		—	6	1	1	5	3
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—		—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough*	2,996	238	86		11	1,683	177	61	74	10
Deaths	5	1	—	—	—	5	2	—	1	—
Deaths (0–1 year)	241	23	29	14	6	302	42	70	23	9
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	3,749	592	522	138	83	3,668	587	503	155	82
Annual death rate (per 1,000 persons living)			10·5	8·6				10·5	9·8	
Live births	7,592	1312	935	382	239	8,464	1340	978	387	230
Annual rate per 1,000 persons living			18·9	23·9				19·7	24·4	
Stillbirths	210	22	37			196	35	36		
Rate per 1,000 total births (including stillborn)			38					36		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Deaths from measles and scarlet fever for England and Wales, London (administrative county), will no longer be published.

‡ Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

§ The number of deaths from poliomyelitis and polio-encephalitis for England and Wales, London (administrative county), are combined

‖ Includes puerperal fever for England and Wales and Eire.

Notifications of infectious diseases in Eire are not available this week.

EPIDEMIOLOGICAL NOTES

Food-poisoning in Faversham

An outbreak of food-poisoning with *Salmonella typhimurium* occurred between Aug. 29 and 31 in Faversham and the surrounding districts in North Kent. During this period 47 cases were notified, mainly from Faversham (42), where the majority of the cases resided, and from villages and towns in the neighbourhood. There is good reason to believe that several more cases scattered over a wide area—Sittingbourne, Woolwich, Whitstable, and Hither Green—occurred at the same time but were not notified either because of the slightness of the attack or because they were not recognized as cases of food-poisoning at the time. The history of every one of these cases revealed one common factor—namely, that they had all attended a luncheon celebration in a London restaurant on Aug. 28 at which 1,103 persons were present.

The symptoms in all the cases, varying only in severity, were abdominal pain, diarrhoea, and vomiting. The onset varied in different cases from 12 hours to as much as two or three days after the luncheon. Among those who were affected three deaths occurred—all in women and all within a few days of each other between Sept. 8 and 12. Only one of these cases, however, has finally been ascribed directly to food-poisoning by *Salmonella typhimurium*. The other two are reported to have died of natural causes—cerebral haemorrhage and cancer—after they had recovered from the clinical symptoms of food-poisoning. A fourth patient, another woman, was critically ill and is now recovering. *Salmonella typhimurium* was recovered from samples of faeces in three cases and post-mortem from the large bowel, gall-bladder, and spleen in the fatal case.

Unfortunately it was found impossible to obtain any specimens of the actual food consumed at the luncheon. In the circumstances the investigations, which are being actively pursued, have necessarily been confined to the methods of preparation and storage of the various items of food at their source. It is of interest to note that the London restaurant concerned does not normally cater for such large parties and that the food provided at the luncheon, which was all cold, was procured already prepared, from different sources. The meal consisted of tinned grapefruit, cold chicken with potato mayonnaise (made, it is understood, with egg powder), Russian salad, meringue and cream (synthetic), and ice-cream. It is obvious that any of these items might provide a suitable pabulum under favourable conditions for the growth of *Salmonella*. An analysis of the items eaten carried out among 34 of the cases affected, including the fatal case, reveals that the majority partook of all the items provided, but that, whereas some missed one item and some another, all partook of the chicken. Most of the cases interrogated had light refreshments (tea or coffee) or a drink at different places on the way home, but no common factor could be established.

Typhoid at Greenock

An outbreak of typhoid fever in the Greenock, Port Glasgow, and Gourock areas of Clydeside was briefly described in our issue of Sept. 11 (p. 540). Further investigation in Kilcreggan among persons residing in habitations beside the stream reveals the presence of a carrier. On being questioned it was found that this person, aged 80, had had typhoid fever at the age of 27 and had remained well since then. Further investigation has involved more accurate typing of the organism isolated from more than 30 cases and from the carrier. The first two results from patients have revealed the fact that the type (F2) is an unusual one. One more case has been notified in Gourock. This is a girl of 6 who appears to have been ill at home for some time before the family doctor was called in. One or two cases in this household are also under observation, and from the dates of onset it would appear that they are more likely to have arisen from the girl of 6 than from primary infection at the stream, although they too had taken part in picnics and had drunk water from the infected stream.

Certificates of Inoculation and Vaccination

Royal Navy.—Arrangements have been made under which certificates of inoculation and vaccination issued to members of the Royal Navy, at home and abroad, will in future be in the international forms prescribed by the International Sanitary Conventions of 1944. Royal Navy certificates will be issued from the appropriate ship or naval establishment and will bear the official stamp. When a civilian medical practitioner who is also an Admiralty surgeon and agent issues a certificate of inoculation or vaccination other than for yellow fever the medical practitioner's signature will be authenticated by the stamp of a medical officer of the Royal Navy or of an officer of the local authority. Selected medical officers of the Royal

Navy have been authorized to carry out inoculation against yellow fever and to issue the international forms of certificate at approved centres at home and abroad. These certificates will be stamped with the official stamp of the ship or naval establishment concerned. These arrangements came into effect on May 1, 1948, but certificates previously issued should be considered valid for the periods laid down in the International Sanitary Conventions of 1944.

British Overseas Airways Corporation.—Arrangements have been made under which certificates of inoculation and vaccination issued by medical officers of British Overseas Airways Corporation at home and abroad will be in the international forms prescribed by the International Sanitary Conventions of 1944 and will bear the official stamp of the medical department of the corporation. Medical officers of British Overseas Airways Corporation have been authorized to carry out inoculation against yellow fever at approved centres and to issue the international form of certificate. These certificates will also bear the official stamp of the medical department of the corporation. These arrangements came into effect on Sept. 1, 1948, but certificates previously issued should be considered valid for the periods laid down in the International Sanitary Convention of 1944.

Discussion of Table

In *England and Wales* during the week there were falls in the incidence of measles 812, whooping-cough 166, scarlet fever 78, and diphtheria 18.

The largest decreases in the notifications of measles were Lancashire 140, Yorkshire West Riding 89, and Essex 76; the only increase of any size was Gloucestershire 43. The decline in whooping-cough was evident only in the southern part of the country, and in the south-eastern counties 112 fewer cases were notified; a slight rise occurred in the north.

There were only small changes in the local returns of scarlet fever. Notifications of diphtheria were one below the total of three weeks ago, which was the lowest total ever recorded. The chief feature of the returns for diphtheria during the week was a decrease of 11 in Lancashire.

The only large return for dysentery was Lancashire 21. The heightened incidence of acute poliomyelitis was maintained. The largest centres of infection were London 7, Lancashire 7, Surrey 6, Glamorganshire 5, Staffordshire 4, and Lincolnshire 4.

In *Scotland* there were increases in the notifications of whooping-cough 26, typhoid 21, acute primary pneumonia 20, and diphtheria 12; decreases were reported for scarlet fever 16 and dysentery 14. The rise in the incidence of typhoid fever was due to the outbreak in the Greenock area to which reference is made again this week. A small increase in the notifications of diphtheria occurred in most areas.

In *Northern Ireland* there was a rise of 20 in the notifications of scarlet fever, and most areas contributed to this increase. In Belfast C.B. an increase of 33 in the notifications of measles was recorded.

Births and Deaths in Eire

The following table shows the figures for the thirteen principal towns in Eire each week from the week ending Aug. 7 to Aug. 21, 1948. During this period there were no deaths due to dysentery, diphtheria, measles, scarlet fever, smallpox, or typhus.

Week ended	Births	Deaths		Deaths Caused By				
		All Ages	Under 1 Year	Diarrhoea and Enteritis (Under 2 Years)	Influenza	Pneumonia	Typhoid	Whooping-cough
1948								
Aug. 7	366	128	7	—	1	3	1	—
„ 14	383	148	21	2	—	1	—	1
„ 21	353	125	6	2	—	2	—	—

Week Ending September 11

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 833, whooping-cough 2,877, diphtheria 136, measles 2,608, acute pneumonia 261, cerebrospinal fever 26, acute poliomyelitis 72, dysentery 84, paratyphoid 32, and typhoid 28.

The Minister of Health has appointed Miss E. Cockayne, S.R.N., S.C.M., to be Chief Nursing Officer in succession to Dame Katherine C. Watt, D.B.E., R.R.C., who is now Chief Nursing Adviser. Miss Cockayne was formerly matron at the Royal Free Hospital.

Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

Learning to Talk Bilingually

Q.—*What are the dangers of bringing up a child bilingually from the very start? The case is that of a baby boy of French parents living in England. He is just beginning to talk, picking up some French words from his mother and some English words. When he learns a new word should he be taught both expressions at the same time? How will he be able to discern between the two languages? Is this procedure too complicated, and would it produce signs of mental strain? Would it be better to start a second language at the age of, say, 2–3 years? The child is normal and intelligent.*

A.—If a child hears more than one language when he is learning to talk, his experiences of course are a little more complex than they would otherwise be. There appears, however, to be no evidence of any harmful results, provided that the child is intelligent and, in general, is developing satisfactorily in a secure and happy home environment. If conditions are favourable the child is able to adapt to the complication of bilingual experience. The writer suggests that no attempt should be made to teach both expressions—i.e., in this case English and French words and phrases—at the same time. Learning to talk bilingually should proceed as naturally and simply as learning to talk in one language only. In time the child will discern between the two languages, responding in French to his family when they speak French to him, and in English to his English environment. If he is going to school in this country he should have every opportunity, by mixing with English children and adults, of becoming fluent in English before going to school. A *third* language should not be introduced until reading and spelling in both English and French are well established. The writer has known cases of backwardness in speech development in which bilingual experience in infancy and early childhood seems to have been a main factor in the retardation. These children were, however, of mediocre or dull intelligence, and therefore unable to adapt themselves to the complication of a second language.

Calculating the Maternal Mortality Rate

Q.—*What are the criteria for calculating maternal mortality in a community? Does a death at the sixth month of pregnancy from anaemia of multiple aetiology constitute a maternal death? Is the rate calculated on live births, on total viable deliveries, or on total cases of pregnancy whether before or after the twenty-eighth week?*

A.—The maternal mortality rate is found by dividing the number of deaths from diseases of pregnancy, childbirth, and the puerperal state by the number of total births (live births and stillbirths combined). No correction is made for multiple births, so that the actual chance of dying from this risk is slightly understated. Every pregnant woman is exposed to the same risk of dying from causes unconnected with pregnancy as if she had not been pregnant, but in the case of some serious diseases pregnancy might be regarded as contributing to the death but not related to the immediate cause. The death in the question would be assigned to anaemia and not to maternal mortality, although this class of death is tabulated separately by the Registrar-General as deaths associated with pregnancy.

Heart Sounds

Q.—*What is the relationship between "reduplicated heart sounds," "third and fourth heart sounds," and "gallop rhythm"? Are they separate entities? If so, how may they be distinguished clinically? What is their significance when present?*

A.—Normally there is a first and second heart sound. Any further heart sounds are numbered third and fourth. A normal third heart sound is occasionally heard, most frequently in

young children when the heart rate is slow and the child is lying on its side. Thayer believes this is due to the increased tension in the mitral valve caused by the sudden inrush of blood at the beginning of diastole.

The first and second sounds are composite, each, according to Sprague and Rappaport, comprising four separate entities. The first is due to vibrations set up by auricular systole, the isometric contraction phase of the ventricles, the opening of the semilunar valves, and the acceleration of blood in the great vessels during the maximum ejection phase of ventricular systole. The second sound is due to ventricular vibration during relaxation at the beginning of diastole, the closure of the semilunar valves, the vibration of the blood column and walls of the great vessels, and the opening of the mitral and tricuspid valves. Any deviation from the normal in the time relationship of the conduction of impulse, or contraction of muscle, or disturbances in pressure relationship in the pulmonary or aortic systems may cause separate components of one or both sounds to be recognizable as individual entities. This may lead to a split or, if definitely separate, a reduplicated heart sound, or even a completely separate third or fourth heart sound. A deep breath may occasion this in a normal individual by increasing the pressure gradient between aorta and left ventricle and diminishing it between right ventricle and pulmonary artery. A prolonged PR interval in latent heart-block may allow the auricular contraction to be heard separately from the ventricular sounds, or in bundle-branch block asynchrony of contraction of the ventricles may cause a reduplicated first sound or first and second sounds.

A gallop rhythm usually refers to an easily recognizable third heart sound in diastole when the heart rate is over 100 per minute and there are obvious signs of cardiovascular disease. It may be a protodiastolic or presystolic gallop rhythm, according to whether the third heart sound occurs in mid- or late diastole. Dock has shown that both are due to sudden tensing of the valves from rebound of the ventricle following the unusually rapid inflow which occurs when the auricular pressure is elevated. It is a sign of ventricular dilatation and impending or actual congestive failure. These added sounds can be differentiated clinically only by assessing the case as a whole and after full examination, including screening of the patient.

Chronic Cold Feet

Q.—*A man aged 53 has had increasingly cold feet for the past ten years. He has suffered a good deal of pain during the past three winters and now has a tender black spot the size of a pin-head on each great toe. B.P. 150/90; pulsation in post-tibial and dorsalis pedis arteries; his general health is good and his hands are normal. Is any drug treatment worth trying? Could nicotinic acid or nicotinamide help?*

A.—The description suggests that this patient has the distal type of peripheral vascular disease in which the occlusive process is chiefly in the small vessels of the foot. The effects of treatment in such patients are often disappointing. The all-important point in management is the inculcation of the most rigid hygienic discipline in the care of the feet. Vasodilator drugs should certainly be employed: nicotinic acid (not nicotinamide) appears to help some, and carbachol has occasionally been successful. It would be advisable to seek the opinion of a surgeon on the desirability of lumbar ganglionectomy.

Lupus Vulgaris and Pregnancy

Q.—*I have a patient with lupus vulgaris who has been ordered by a dermatologist to take 50,000 units of calciferol twice daily. She has now become pregnant. Is calciferol in such doses contraindicated? Is the pregnancy likely to affect the lupus vulgaris?*

A.—Pregnancy does not often have a significant effect on lupus vulgaris. In some cases the condition appears to be activated slightly but not to the extent of causing any serious anxiety. Nor does pregnancy contraindicate treatment with calciferol in the dose mentioned. However, the patient needs to be kept under close observation during treatment, and regular and frequent testing of the urine and blood pressure is important. Treatment should be suspended in the presence of either albuminuria or hypertension, or if the patient develops any toxic symptoms attributable to the calciferol. Here there may be some difficulty, for common toxic symptoms such as anorexia, nausea, vomiting, and lassitude might be confused with similar symptoms associated with the pregnancy itself. Estimation of the serum calcium level might be carried out from time to time as an additional precaution.

Benadryl and Agranulocytosis

Q.—*Is agranulocytosis or any other dangerous blood condition likely to develop from the administration of 50 mg. of "benadryl," three times a day for a period of six to eight weeks?*

A.—Benadryl has been used very widely since its introduction in 1946, and there has been plenty of opportunity to observe the occurrence of agranulocytosis if that was produced by taking benadryl. So far there has been no record of this, and it may safely be concluded that there is no risk of "a dangerous blood condition" arising from the proposed treatment.

Stability of Calcium Chloride and Ammonium Bromide

Q.—*Are calcium chloride and ammonium bromide stable in solution? I mean a solution kept as stock for dispensing. Could you give me the approximate solubility of calcium chloride?*

A.—Both calcium chloride and ammonium bromide are perfectly stable in aqueous solution, and the usual strength for a stock solution for dispensing is 1 in 6. Calcium chloride is very deliquescent and is soluble to the extent of about one part in one and a half parts of water. Ammonium bromide has approximately the same solubility.

Pasta Picis Carbonis

Q.—*Tar being a carcinogenic substance, is it unwise to use pasta picis carbonis (B.P.C.) for other than brief periods? If so, what would be considered a safe period of time?*

A.—The carcinogenic potency of liquor picis carbonis has recently been tested by Berenblum, whose report on this subject appears elsewhere in this issue (p. 601). His earlier work was discussed in the twenty-fifth annual report of the British Empire Cancer Campaign (1947, p. 133). Spectrographic analysis showed its benzpyrene content to be about 0.02%. Biological tests, consisting of twice-weekly painting of mouse skin, yielded seven tumours in 12 mice treated; of these tumours, four subsequently became malignant. While this result is properly regarded as having clinical interest, the risk of tumour induction following application of the liquor or paste in man is probably very small. It is, however, impossible to indicate any safe period, and it would be advisable for their application, especially for lengthy periods, to be subject to regular medical supervision; meantime, as Berenblum says, "avoidance of *long-continued* application of liquor picis carbonis would be a wise precaution." Berenblum's article and the general problem raised by this question are further discussed in an annotation at p. 608 of this issue.

Correction

In the issue of Sept. 4 (p. 489) it was stated that a short full-time intensive course in paediatrics was given by the Royal College of Physicians of London. We understand that this is not so, and it is therefore unnecessary to address further inquiries to the College.

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Aitiology, Westcent, London.* ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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